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SIGNAL SERVICE NOTES
No. IX.

WEATHER PROVERBS

1883

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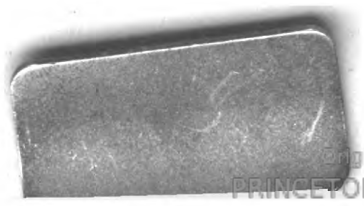

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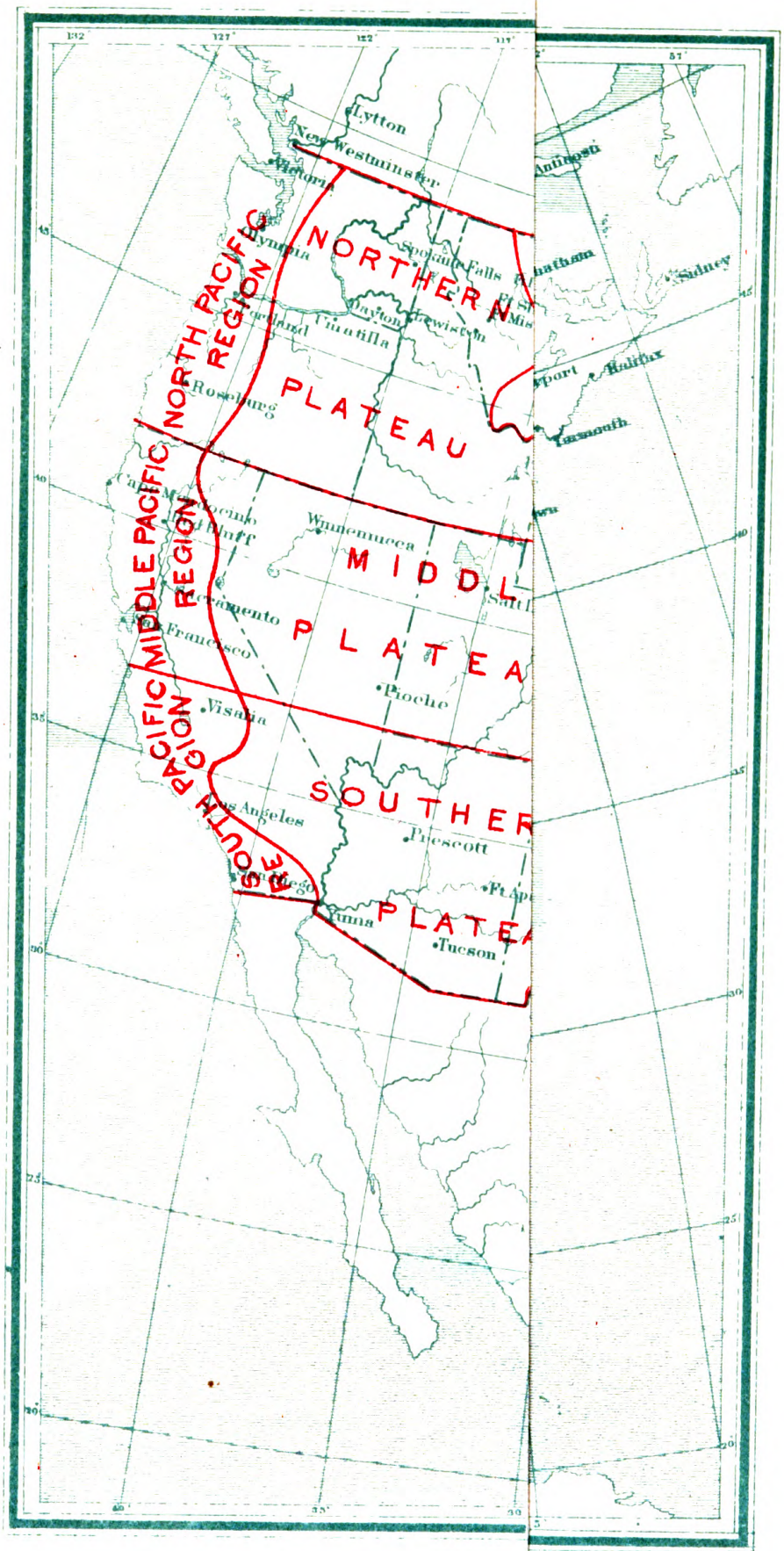

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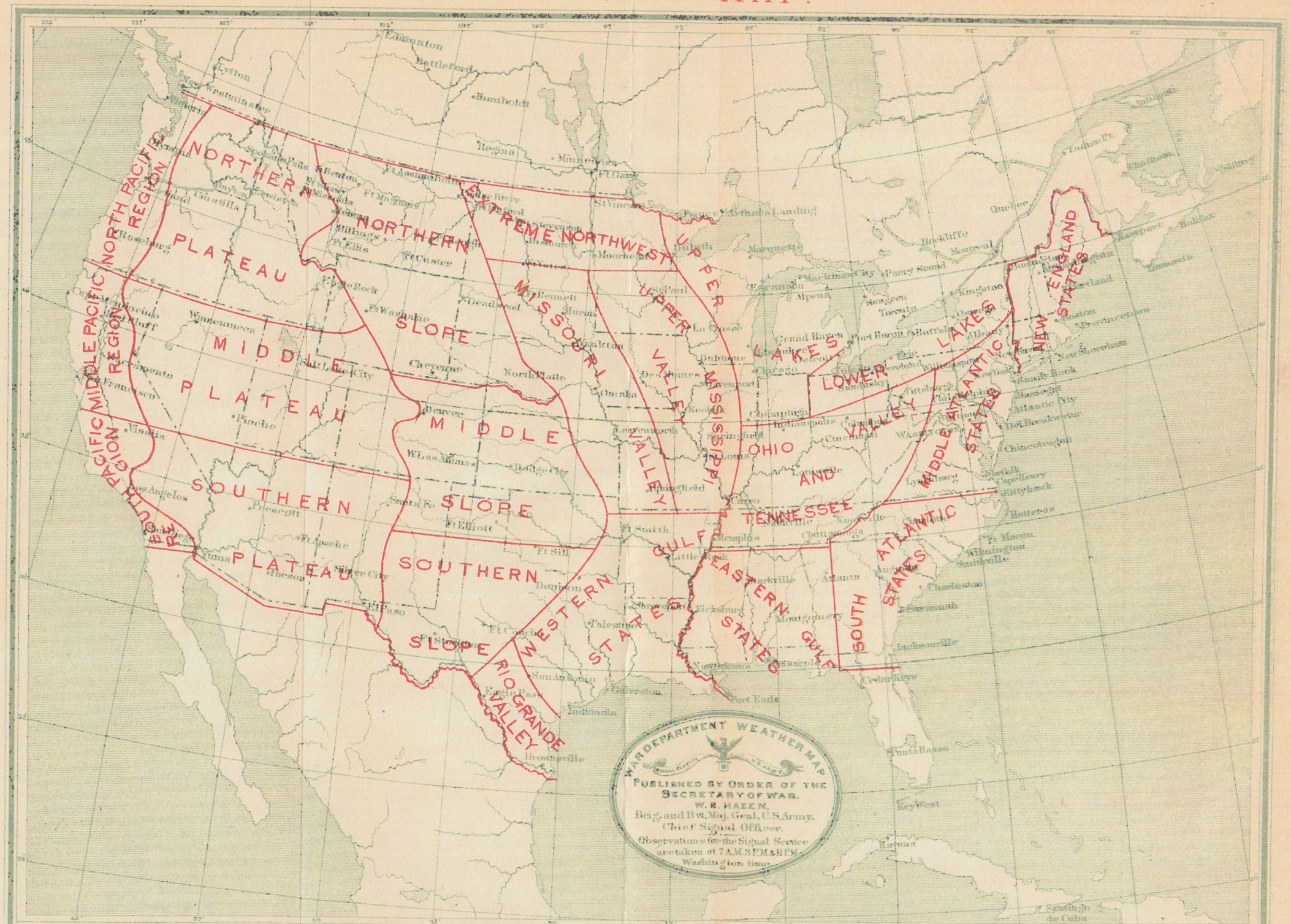
DISTRICT MAP.



UNITED STATES OF AMERICA:

WAR DEPARTMENT.

SIGNAL SERVICE NOTES.

No. IX.

WEATHER PROVERBS.

PREPARED UNDER THE DIRECTION OF

BRIG. AND BVT. MAJ. GEN'L W. B. HAZEN,

CHIEF SIGNAL OFFICER OF THE ARMY.

BY

H. H. C. DUNWOODY,

1ST LIEUTENANT, 4TH ARTILLERY, A. S. O. AND ASST.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF WAR.

WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1883.

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The study of popular weather prognostics has been considered of such interest that much attention has been given this subject by European meteorologists. It is proposed to make the collection as complete as possible, and, with this in view, it is requested that all popular weather sayings not found in this collection may be communicated to the Chief Signal Officer of the Army. It is proper to add that the weather forecasts of this office are not based upon the proverbs here given, but wholly upon observations and generalizations accepted by meteorologists.

W. B. H.

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TABLE OF CONTENTS.

	Page.
Introduction or note to accompany publication by Chief Signal Officer	
Letter of Lieut. H. H. C. Dunwoody transmitting report	5
Copy of circular calling for reports of popular weather sayings	7

PART I.

Popular Weather Prognostics. By the Hon. RALPH ABERCROMBY, F. M. S., and WILLIAM MARRIOTT, F. M. S	9
Proverbs relating to animals, with note by Dr. C. C. ABBOTT	29
Proverbs relating to Birds	34
Clouds	41
Dew	48
Fish	49
Fog	51
Frost	53
Insects	55
Moon	59
Plants	64
Rain	68
Rainbows	70
Reptiles	72
Stars	73
Snow	74
Sun	76
Thunder and lightning	79
Trees	82
Wind	83
Years, seasons, months, weeks, and days	88–93
General prognostics	105

PART II.

1. Instrumental and other local indications of approaching storms, compiled from reports made to the Chief Signal Officer by observers of the Signal Service, United States Army	129
2. Table 1 shows the quadrants from which winds are most likely to be followed by rain or snow in the several districts of the United States	141
Table 2, shows the quadrants from which winds are least likely to be followed by rain or snow, computed from the observations of the Signal Service	143
3. District map, showing the boundaries of meteorological districts used by the Signal Service in preparation of weather indications	145
List of names and addresses of persons furnishing reports for this publication	145

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OFFICE CHIEF SIGNAL OFFICER,
Washington, D. C., May 11, 1883.

SIR: I have the honor to submit the following report of the "Popular weather proverbs, prognostics, &c.," in use in the United States:

The circular recently issued by you calling upon all observers, both regular and voluntary, and the general public to coöperate with the Signal Service in the collection of this information was widely distributed, and the replies received contain special prognostics in use in each section of this country. Many of these sayings express, in a crude form, the meteorological conditions likely to follow, and have resulted, from the close observation on the part of those whose interests compelled them to be on the alert, in the study of all signs which might enable them to determine approaching weather changes.

The increase of aqueous vapor in the atmosphere is indicated by its effect upon animal and vegetable organization. Animals are observed to become restless before rain, and many prognostics are based upon the action of birds, beasts, fish, reptiles, and insects. Plants and trees also indicate change in the hygrometric condition of the surrounding atmosphere by the expansion and contraction of their leaves or flowers. The increase of aqueous vapor is indicated by the expansion or contraction of various substances, such as wood, whalebone, cat-gut, sponge, and hair, which, when colder than the air, condenses the moisture upon them, and this being absorbed increases the temperature, thus causing expansion or contraction. This action of heat and vapor upon these various substances has been utilized by meteorologists in the construction of hygrometers, and a number of the prognostics herewith express the effect of moisture on the articles named.

I have indicated only a limited number of those prognostics which depend upon the quantity of vapor in the atmosphere with a view of illustrating that a portion of these popular weather sayings are based upon true meteorological conditions, and a thorough knowledge of this class of prognostics may prove of service to the observer when instruments are not at hand.

Those popular sayings referring to years, months, weeks, &c., are not considered of any real value in determining the weather forecasts for the periods named. They are given that general attention may be directed to this class of weather forecasts. The ablest meteorologists of to-day, aided by the most perfect meteorological instruments and the results of years of accurate instrumental observations, are still unable to give reliable forecasts of the weather for a longer period than two or three days, and frequently not longer than twenty-four hours. It is possible that a more accurate observation of the condition of plants or

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the condition and action of animals might lead to some valuable suggestion in this important field of investigation. At least we may be permitted to invite a wider field of observation in this branch of the science so long as those most learned in meteorology are unable to inform the agriculturist whether the approaching season will be wet or dry, warm or cold.

I have included in this report the interesting paper on Popular Weather Prognostics by the Hon. Ralph Abercromby, F. M. S., and William Marriott, F. M. S., which was read before the Meteorological Society of London December 20, 1882. This paper is of special value when considered in connection with the popular weather sayings given in this report, as the relation existing between many of these prognostics and the attending meteorological conditions as determined from instrumental observations is clearly shown.

Under head of General Prognostics will be found a paper of special interest by Mr. Cushing, giving weather prognostics in use among the Zuñi Indians of New Mexico.

Part 2 contains the local indications of weather changes as determined by Signal Service observers at several stations of the Signal Service. Also table showing the wet and dry winds of each district for each month of the year, with a district map showing the geographical boundaries of the districts used in the preparation of weather indications of the Signal Service.

I am very respectfully, your obedient servant,

H. H. C. DUNWOODY,

First Lieutenant, Fourth Artillery, A. S. O. and Assistant.

The CHIEF SIGNAL OFFICER, U. S. A.,

Washington, D. C.

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CIRCULAR CALLING FOR REPORTS OF POPULAR WEATHER SAYINGS.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Washington City, ——— —, 188 .

DEAR SIR: It is the purpose of this office to make a collection of the popular weather proverbs and prognostics used throughout the country and by all classes and races of people, including Indians, negroes, and all foreigners. In order to facilitate this work the accompanying questions have been prepared and distributed. If you will kindly lend your assistance in this work I shall be greatly obliged, and if the reports are numerous enough to warrant their printing you shall be furnished with a copy of the paper.

Please write the answers to the questions on the lines provided for that purpose, *and number the answers to correspond with the numbers of the questions answered.* Please add such other information bearing on the subject as you may have. When possible please give the origin and history of the saying or proverb.

Yours, very respectfully,

W. B. HAZEN,
Brig. & Bvt. Maj. Gen'l, Chief Signal Officer, U. S. A.

1. Proverbs relating to the sun.
2. Proverbs relating to the moon. (New moon, change of moon, halo around the moon, influence of moon on agricultural operations, change of moon on days of week, &c.)
3. Proverbs relating to stars and meteors.
4. Proverbs relating to rainbows.
5. Proverbs relating to mist and fog.
6. Proverbs relating to dew.
7. Proverbs relating to clouds.
8. Proverbs relating to frost.
9. Proverbs relating to snow.
10. Proverbs relating to rain. (Morning, midnight, rain from particular quarter, rain during squalls.)
11. Proverbs relating to thunder and lightning. (First thunder in the year, thunder from the west, north, east, south; lightning west, north, northwest, south, southwest, and east.)
12. Proverbs relating to winds. (Day, night, morning, evening; wind and rain, wind preceding fair weather, cold winds, direction of winds, north wind, northeast wind, northwest wind, south wind, east wind, west winds, wet wind, veering winds, backing winds.)
13. Prognostics from the actions of animals. (Bats, oxen, cats, dogs, goats, hares, rabbits, horses, mice, moles, pigs, rats, sheep, weasels, wolves, frogs.)
14. Prognostics from birds. (Blackbirds, cranes, cuckoos, ducks, finches, fowls, chickens, geese, guinea fowl, gulls, kingfishers, kites, larks, migratory birds, owls, peacocks, pigeons, quails, robins, rooks, snipe, sparrows, swallows, swans, thrushes, wild geese, woodpeckers, wrens.)
15. Prognostics from fish. (Carp, dolphin, pike, porpoise, trout, shad, herring, mackerel, cod, blue-fish, lobsters, crabs.)
16. Prognostics from reptiles. (Frogs, glow-worms, leeches, snails, snakes, toads, worms.)
17. Prognostics from insects. (Ants, bees, beetles, crickets, flies, gnats, lady-birds, spiders, wasps.)
18. Prognostics from trees, plants, &c. (Brambles, brooms, chick-weed, clover, colts-foot, dandelions, ferns, fir-cones, hawthorne, marigolds, mushrooms, oak, onions, pear, apple, roses, sea-weed, sensitive-plants, thistles, walnuts, wood-sorrel, chaff, leaves, &c.)
19. Prognostics of the weather drawn from various objects. (Chairs, tables cracked before rain, &c., coals burning brightly, corns, ditches, doors, dust, lamps, rheumatism, salt, seed, sign-boards, smoke, soup, sound, strings, toothache, walls.)
20. Proverbs relating to days of the week. (Weather and agricultural rules.)
21. Proverbs relating to each month of the year. (January, February, March, &c.)
22. Proverbs relating to the seasons of the year. (Spring, autumn, &c.)
23. Proverbs of weather relating to the year.
24. Proverbs of weather and popular sayings relating thereto, not included in the answers to the above questions.

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PART I.

POPULAR WEATHER PROGNOSTICS.

By the Hon. RALPH ABERCROMBY, F. M. S., and WILLIAM MARRIOTT, F. M. S., reprinted from the "Quarterly Journal of the Meteorological Society,' published in London.

The attempt to foretell the weather is not of recent date; the ancients carefully studied the sky and clouds, and endeavored to predict the kind of weather that was likely to ensue; and a number of the popular prognostics of the weather of his time are recorded by Aristotle in his work *on meteors*. In later times our forefathers studied the weather, and as they had no instruments to guide them they observed natural objects and noticed the appearances of the sky and clouds, and also the movements of animals, birds, plants, &c. Shepherds and sailors especially being exposed to all kinds of weather, would naturally be on the lookout for any signs of a coming change, and after a time would begin to associate certain appearances with certain kinds of weather. A good deal of weather wisdom of the above character has been thrown into proverbs, trite sayings, and popular verse; and we propose in the present paper to examine and explain some of these by the aid of the most recent discoveries of meteorological science. A great advance has been made in meteorology during the last twenty years, owing to the introduction of daily synoptic charts of the distribution of atmospheric pressure, temperature, wind, rain, &c. From these it is evident that there is a distinct relation existing between the distribution of pressure and the direction and force of the wind, and the temperature and weather generally. A glance at a number of the charts shows that there is nearly always present either an area of low pressure, called a cyclone, usually having an approximately circular form, and, as a rule, moving in an easterly or northeasterly direction; or an area of high pressure, called an anticyclone, also nearly circular in form, but almost stationary in position. The wind in all cases also blows in a direction nearly parallel with the isobars, having the region of lowest pressure on the left hand. This has given rise to the simple law propounded by Dr. Buys Ballot, for the northern hemisphere, viz: "Stand with your back to the wind, and the barometer will be lower on your left hand than on your right." In cyclones the wind circulates in the opposite way to which the hands of a watch move, but exhibits usually a little in-draught; while in anticyclones the wind circulates in the same way as the hands of a watch, but exhibits usually a little outward motion. The intensity of the wind in all cases depends upon the closeness of the isobars; for the closer the isobars the greater is the difference in pressure in a given distance, and consequently the stronger the wind. Nearly all of our weather is of the cyclonic or anticyclonic type, and is entirely dependent upon the form and distribution of the isobars. It is, therefore, by the aid of isobaric charts that we shall attempt to explain popular prognostics, and to associate them with certain kinds of weather. The method of research actually adopted has been for many years past to

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take notes of any good observation of any prognostic and put them in a portfolio, with the nearest synoptic chart available, or preferably with the nearest, both before and after. When a sufficient number had been collected they were analyzed, and the remarkable result has been arrived at that the greater number of prognostics are simply descriptive of the weather and appearance of the sky, in the different portions of the various shapes of isobars seen on synoptic charts, and that they indicate foul or fair weather just as they precede the shifting areas of rain or blue sky which are mapped out by the isobaric lines. These charts not only show the success of the prognostics, but also explain wherein they sometimes fail, by tracing the changes of each particular condition of the weather. Hitherto the only prognostics which have been accounted for have been those due to excessive damp, but by means of isobaric charts many others can be readily explained. It must not be supposed that the modern methods diminish the value of prognostics, for even in forecasting weather from synoptic charts they are of great value, and are always exceedingly useful to solitary observers who have only a single barometer to depend upon besides these prognostics, as, for instance, on board ship.

We hope that the present paper will create an interest on the part of many in this subject, and show that it is within their power to assist in advancing the science of meteorology, so that it may not remain any longer in the unsatisfactory state set forth in the following old Bedfordshire lines:

"Well, Duncombe, how will be the weather?"
"Sir, it looks cloudy altogether,
And coming across our Houghton Green,
I stopped and talked with old Frank Beane.
While we stood there, sir, old Jan Swain
Went by and said he knowed 'twould rain;
The next that came was Master Hunt,
And he declared he knew it wouldn't.
And then I met with Farmer Blow,
He plainly said he didn't know,
So, sir, when doctors disagree,
Who's to decide it, you or me?"

CYCLONE PROGNOSTICS.

We shall first take a typical well formed cyclone. In the accompanying diagram (Fig. 1) the broad features of the relation of cloud and rain to a cyclone centre are shown, the full line indicating the path of the depression, and the dotted line at right angles to it is the trough or locus of the lowest reading of the barometer.

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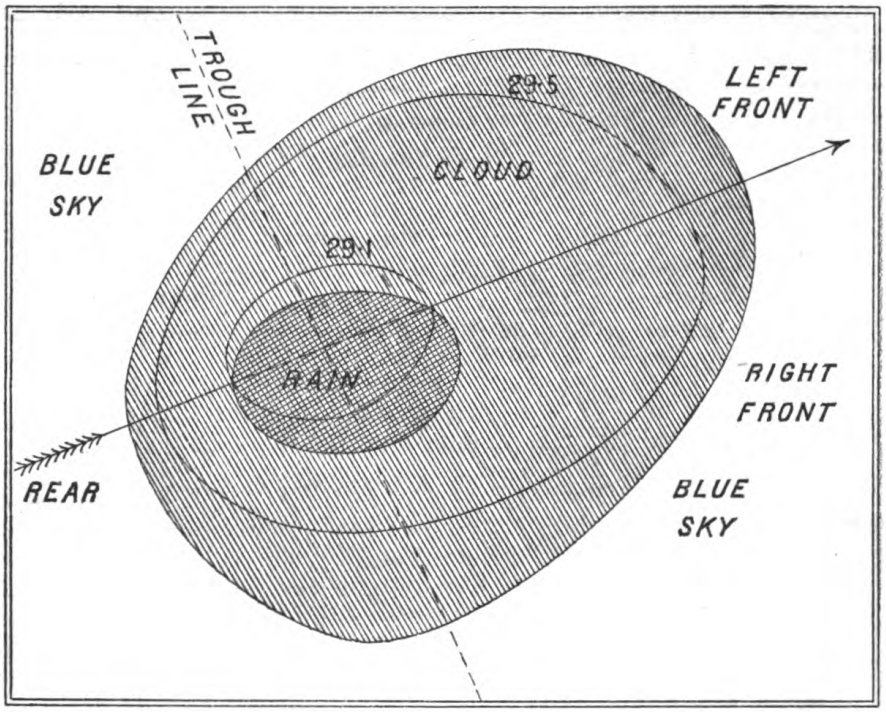

FIG. 1.—WEATHER IN A CYCLONE, NOVEMBER 14, 1875.

In the extreme front of the depression there is a blue sky, then, as the barometer begins to fall, and sometimes even before that takes place, a bank of cirro-stratus, preceded by a halo-bearing sky, makes its appearance, which gradually becomes lower and denser, and forms an overcast, dirty sky. In the whole front of the depression the temperature rises, and the atmosphere feels muggy and close. In the right-hand front the clouds assume the cumulo-stratus type, with driving rain later on. In the left-hand front the air is cooler, but still oppressive, with an easterly wind and overcast sky, succeeded by drizzling rain or ill-defined showers. When the trough of the depression has passed the barometer begins to rise, the wind changes and becomes squally, with showers of rain; the air grows cooler, and the clouds break and ultimately clear away.

Now, with regard to the prognostics with reference to Fig. 2, where

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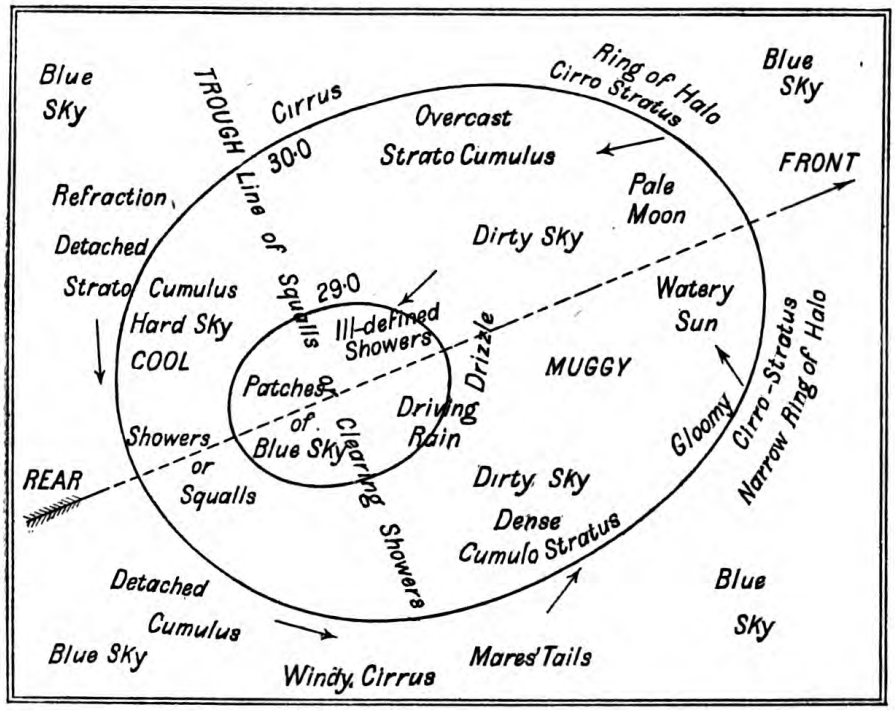

FIG. 2.—CYCLONE PROGNOSTICS.

the characteristic weather in the different portions of a depression are given in a diagrammatic form, it will be seen that the first indication of a coming change is the appearance of a halo round the sun or moon in the cirro-stratus clouds. Hence,

When round the moon there is a brugh,
The weather will be cold and rough.

The moon with a circle brings water in her beak.

Halos predict a storm (rain and wind or snow and wind) at no great distance, and the open side of the halo tells the quarter from which it may be expected.

Mock suns predict a more or less certain change of weather.

With regard to the open side of the halo indicating the quarter from which the storm may be expected, it does not appear that this can be much used as a prognostic. It, however, most probably originated in the fact that halos are often seen in the southwest or west, when the sun or moon is rather low, the lower portion of the halo being cut off by clouds banking up in that direction, and that our storms generally come from those quarters. As a specimen of the value of prognostics we give some details of halos. When rain does not fall within thirty-six hours, any subsequent rain probably belongs to a new depression.

During the six years ending June, 1882, one hundred and fifty-five solar halos and sixty-one lunar halos were observed in the neighborhood of London, and they occurred with the following winds:

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	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Total.
Solar halos	9	7	17	8	22	28	59	5	155
Lunar halos	4	3	8	3	8	11	21	3	61
WITH SOLAR HALOS.									
Rain fell on same day	3	1	10	4	15	12	36	0	81
Rain fell on first day	1	2	1	2	2	10	12	1	31
Rain fell on second day	0	0	1	0	2	1	4	2	10
Rain fell on third day	3	1	0	0	0	1	1	1	7
No rain	2	3	5	2	3	4	6	1	26
WITH LUNAR HALOS.									
Rain fell on first day	1	1	3	3	3	9	13	1	34
Rain fell on second day	0	1	0	0	1	1	3	0	6
Rain fell on third day	1	1	2	0	3	1	0	1	9
Rain fell on fourth day	0	0	0	0	0	0	3	1	4
No rain	2	0	3	0	1	0	2	0	8

After the halo comes the pale or watery sun and moon.

When the sun appears of a light, pale color or goes down in a bank of clouds, it indicates the approach or continuance of bad weather.

If the sun goes pale to bed,
'Twill rain to-morrow, it is said.

A red sun has water in his eye.

When the moon has a white look or when her outline is not very clear, rain or snow is looked for.

From the extreme damp in this part of the depression, while the sky generally is pretty clear, cloud forms round and "caps" the tops of hills, a circumstance that has given rise to numerous local sayings:

When the clouds are upon the hills,
They'll come down by the mills.

When Cheviot ye see put on his cap,
Of rain ye'll have a wee bit drap.

If Riving Pike do wear a hood,
Be sure the day will ne'er be good.

When Bredon Hill puts on his hat
Ye man of the vale beware of that.

From the same excessive damp the following may be explained:

When the walls are more than usually damp rain is expected.

Doors and windows are hard to shut in damp weather.

The sailor notes the tightening of the cordage on his ship as a sign of coming rain.

A lump of hemp acts as a good hygrometer, and prognosticates rain when it is damp.

When walls built of stones which have been quarried below high-water mark become damp, wet weather is at hand.

Also, owing to excessive moisture, clouds appear soft and lowering, and reflect the glare of iron-works and the lights of large towns:

The glare of the distant Ayrshire iron-works being seen at night from Cumbræ or Rothsay, rain is expected next day.

In Kinkardine of Monteith (Perthshire) and in all that district the reflections from the clouds of the furnaces of the Devon and Carrow works (to the east) foretell rain next day.

Also:

When the flames of candles flare and snap or burn with an unsteady or dim light, rain, and frequently wind also, are found to follow.

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This is especially applicable to oil-lamps or tallow candles.

As the depression approaches and the atmosphere becomes gloomy, close, and muggy, some people are troubled with rheumatic pains and neuralgia, old wounds, and corns are painful, animals and birds are restless, and drains and ditches give out an offensive smell:

When rheumatic people complain of more than ordinary pains in the joints, it will rain.

If corns, wounds, and sores itch or ache more than usual, rain is to fall shortly.

A coming storm your shooting corns presage,
And aches will throb, your hollow tooth will rage.

When animals seek sheltered places instead of spreading over their usual range, an unfavorable change is probable.

Hark! I hear the asses bray,
We shall have some rain to-day.

If oxen turn up their nostrils and sniff the air, or if they lick their fore feet, or lie on their right side, it will rain.

Goats leave the high grounds and seek shelter before a storm.

Hogs crying and running unquietly up and down with hay or litter in their mouths, foreshow a storm to be near at hand.

When birds of long flight—rooks, swallows, or others—hang about home and fly up and down, or low, rain or wind may be expected.

This tumbling of rooks is amongst the best known signs of rain in places where those birds are found.

When the peacock loudly bawls,
Soon we'll have both rain and squalls.

If toads come out of their holes in great numbers, rain will soon fall.

If glow-worms shine much, it will rain.

When gnats bite keenly, and when flies keep near the ground, we look for wind and rain.

When spider-webs are seen floating about in the air, farmers regard it as a sign of coming rain.

When many bees enter the hive and none leave it, rain is near.

Also, from cloud and gloom, plants shut up their petals early:

The *Convolvulus arvensis* (small bind-weed), *Anagallis arvensis* (scarlet pimpernel), and *Calendula pluvialis* shut up their flowers before approaching rain. (The *pimpernel* has been called the poor man's weather-glass.

Dr. Jenner's well-known lines are very good, as they contain references to most of the natural prognostics. (See page 110, General Prognostics.)

It will be seen, however, later on, that the sayings about the rainbow, distant hills, and whirling dust, though good prognostics, do not belong to a depression.

As the depression centre approaches still nearer, rain sets in and continues till the barometer turns to rise. The passage of the trough is often associated with a squall or heavy shower, commonly known as "a clearing shower." Immediately the air becomes cooler and loses the former muggy sensation, and soon small patches of blue sky appear.

When as much blue sky is seen as will make a Dutchman a jacket (or a sailor breeches) the weather may be expected to clear up.

A small cloudless place in the northeast horizon is regarded both by seamen and landsmen as a certain precursor of fine weather or a clearing up.

The steady rain breaks up into showers or cold squalls, which are followed by hard detached cumulus or strato-cumulus till the sky becomes blue again:

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When after a shower, the cirro-strati open up at the zenith, leaving broken or ragged edges pointing upwards, and settle down gloomily and compactly on the horizon, wind will follow, and will last for some time.

This is a description of a clearing up before the windy portion of a depression has passed.

In the south of the depression near the outskirts, windy cirrus and "mare's tails" are observed, which indicate wind rather than rain, as they are south of the rainy portion.

The cloud called goat's hair or the gray mare's tails forbodes wind.

If clouds look as if scratched by a hen
Get ready to reef your topsails then.

Mackerel sky and mare's tails,
Make lofty ships carry low sails.

The shift of the wind is different in the right-hand portion of the depression to what it is in the left-hand portion. In the former, on its first approach, the wind backs to south and falls very light to an almost ominous calm. The first puffs or "paws" of wind give rise to a noise in tree tops without much wind, and little eddies of dust, or to a whistling of the wind indoors, which are all well-known signs of rain. Then, as the depression passes along, the wind gradually veers to southwest and west, with increasing strength. Hence,

When the wind veers against the sun,
Trust it not, for back 'twill run.

When the wind is in the south
It is in the rain's mouth.

In the left-hand side of the depression the wind will back right round from south through east to north and northwest. In the rear of the depression on the left-hand side the wind blows from the northeast and then north, when the clouds begin to break and the weather to clear. When the depression has nearly passed away the wind in the rear draws round to the northwest, and gradually abates, and the weather becomes fine. Hence the saying:

Do business with men when the wind is in the northwest.

This bringing the finest weather is said to improve men's tempers, as opposed to the neuralgic and rheumatic sensations felt in front of a depression.

WEDGE-SHAPED ISOBAR PROGNOSTICS.

Though the bulk of British weather is made up of cyclones and anticyclones, there are two other distributions of pressure marked out by wedge-shaped isobars and straight isobars respectively, which have never before been described, but which are associated with many well-known sayings. The chief interest in these prognostics consists in the contrasts which they present to cyclone prognostics, as in many cases they are associated with fine or dry weather, as opposed to the damp of an approaching depression. We shall first describe the prognostics which characterize the wedge-shaped area of high pressure that is frequently formed between a retreating and an advancing depression, as it is by far the most common.

All these prognostics owe their value to the fact that as the new depression comes on, rain may be expected. By reference to Fig. 3 it will be seen that in the rear of the retreating depression the weather is beautifully fine, of the sort of which we should say that it was "too fine to last," or, if it lasted a whole day, we should call it a "pet day."

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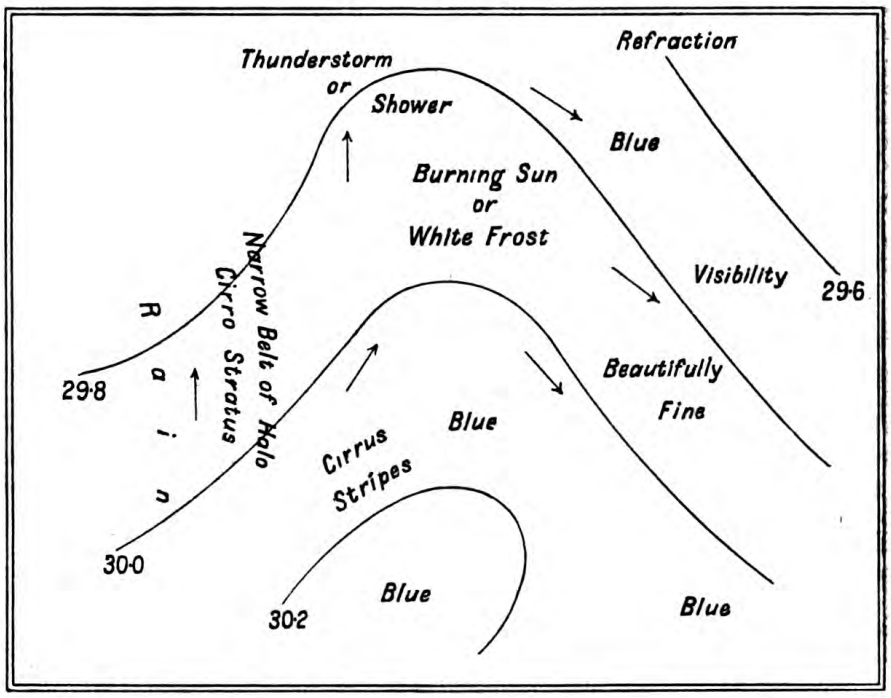

FIG. 3.—WEDGE-SHAPED ISOBARS.

An unseasonably fine day in spring is called a pet day in Scotland. The fate of pets they say awaits it, and they look for bad weather on the morrow.

During the day the sun is burning hot:

When the sun burns more than usual, rain may be expected.

During the night white frost is formed, owing to calm radiation:

A white frost never lasts more than three days; a long frost is a black frost.

Frost suddenly following heavy rain seldom lasts long.

As the day advances after a white frost, the air becomes dull from the influence of the on-coming depression; whence the saying—

When the frost gets into the air it will rain.

During the very fine weather, on the east side of a wedge-shaped area there is often great visibility with a cloudless sky:

The further the sight the nearer the rain.

When the Isle of Wight is seen from Brighton or Worthing, rain may be expected.

When to the people about Arbrouth the Bell-Rock light is particularly brilliant, rain is expected.

About Cape Wrath and along that part of the coast when the Orkney Islands are distinctly seen, a storm or a continuation of bad weather is prognosticated.

When from Ardersier and the adjoining parish on the southeast side of the Moray Firth the distant Ross-shire hills are distinctly seen in the morning rain is expected that day.

To the people in Eaglesham, in Renfrewshire, when the Kilpatrick hills appear near a change to wet is looked for; but when they appear remote, dry weather will continue.

If the old moon embraces the new moon, stormy weather is foreboded.

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Great confidence is placed in this old prognostic:

I saw the new moon late yestreen
Wi' the old moon in her arm,
And if we gang to sea, master,
I fear we'll come to harm.

The reason of "visibility" is uncertain; the old idea that it is due to excess of vapor is certainly erroneous. The dry and wet bulb hygrometer always indicates a considerable amount of dryness when it is remarked, and Mr. Cruickshank has shown by long observation at Aberdeen that visibility is greatest at the driest season of the year.

At the extreme northwest edge of a depression there is often unusual "refraction," a well-known sign of rain. This seems to be due to the cold air in the rear of a depression being much below the temperature of the sea. If so, it is a sign of rain, for the reason that one depression is usually followed soon by another, which also explains the saying—

A norwester is not long in debt to a souwester.

Refraction and visibility combined also explain the following curious local prognostic:

When Ailsa Craig is distinctly seen, and seems near at hand, the people of Cumbræ look for change. When the weather is going to be finer it lies flat; but when rain is coming it assumes the form of a mushroom.

Ailsa Craig is an isolated rock standing in the Firth of Clyde, about thirty miles from Cumbræ. It has a conical top, with precipitous sides, so that in ordinary weather only the top is seen lying flat on the horizon; but sometimes in the rear of a depression it appears lifted by refraction, and the light encroaches at the edges, as is often seen with projecting promontories, giving the whole a fanciful resemblance to a mushroom. The prognostic is mistrusted by the inhabitants during frost, and we have proved it by our own observation. On the west side of the wedge-shaped area, as the new depression comes on, the blue sky gradually assumes a dirty appearance, accompanied by a halo, and gathers into cloud, and later on rain begins to fall; while in the southern portion the rain is often preceded by strips of cirrus, either lying in the direction of the wind, or sometimes at right angles to it:

Cirrus at right angles to the wind is a sign of rain.

STRAIGHT ISOBAR PROGNOSTICS.

Now we come to the consideration of some very interesting rain prognostics associated with straight isobars. While those in a depression are preceded by an almost ominous calm, and a dirty, murky sky, these are associated with a hard sky and blustery wind, of which it would be ordinarily remarked "that the wind keeps down the rain," or "that when the wind falls it will rain." While also the prognostics which precede cyclone rain hold good for the reason that they are seen in front of the rainy portion, those associated with straight isobars hold good because, though there is little rain actually with them, the area which they cover to-day will probably be covered by a depression to-morrow—the conditions being favorable for the passage of depressions.

On turning to Fig. 4 it will be seen that while the pressure is high to the south, it is generally low to the north, without any definite cyclonic system, and that the isobars run straight nearly east and west.

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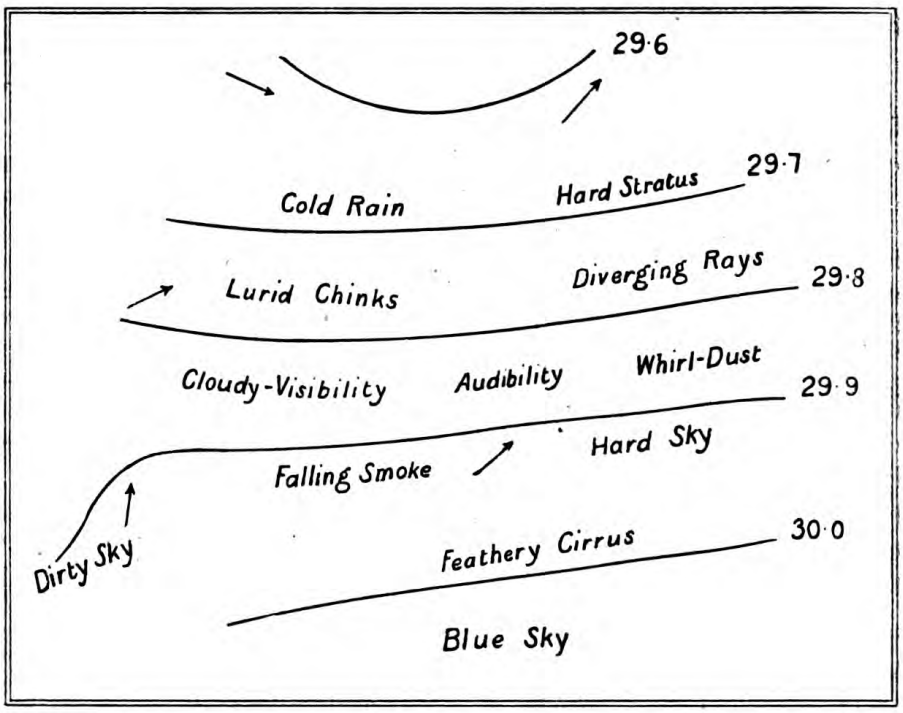

FIG. 4.—STRAIGHT ISOBAR PROGNOSTICS.

Near the high pressure the sky is blue, then as we approach the low pressure feathery cirrus, or some form of windy sky, makes its appearance, while a blustery wind whirls the dust, or blows the soot down, and animals turn their tails to the wind to avoid its force on their faces:

When chimneys smoke and soot falls, bad weather is at hand. The whistling of the wind heard within doors denotes rain.

When sheep, cattle, or horses turn their backs to the wind, it is a sign of rain.

Getting still nearer the low pressure, the sky is found to be gathering into hard stratus, at first with chinks between its masses, through which divergent rays stream down under the sun, which is spoken of as "the sun drawing water." Sometimes, especially in winter, these rays are lurid, and are referred to in the following prognostic:

Along the north shore of the Solway, from Dumfries to Gretna, a lurid appearance in the eastern or southeastern horizon, called from its direction "a Carlisle sky," is thought a sure sign of coming rain. They describe it as lurid and yet yellowish, and the common saying is:

The Carle sky
Keeps not the head dry.

At the same time there is often great "visibility" with a hard overcast sky, and moderately dry air, in which the stratus seems to play the part of a sunshade, for as soon as the sun comes out the clearness of distant objects diminishes. This visibility must not be confounded with the visibility already described with a cloudless sky, which occurs with wedge-shaped isobars. Simultaneously we often find "audibility."

If the noise of a steamer or railway train is heard at a great distance, rain is predicted.

This distinctness of distant sounds must be carefully distinguished from sounds which are not usually heard, being brought up by the wind

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coming from a rainy quarter. For instance, the whistle of a railway train to the south of a house will not be usually heard with the normal southwest wind of this country; but when the wind backs in front of a depression to the south, then it will be heard, and although this will be a good prognostic, still it is not true audibility.

When people of Monzie (Perthshire) hear the sound of the waterfalls of Shaggie, or the roar of the distant Turret clearly and loudly, a storm is expected; but if the sound seems to recede from the ear till it is lost in the distance, and if the weather be thick a change to fair may be looked for speedily.

In Fortingall (Perthshire) if, in calm weather, the sound of the rapids on the Lyon is distinctly heard, and if the sound descends with the stream, rainy weather is at hand; but if the sound goes up the stream and dies away in the distance, it is an omen of continued dry weather, or a clearing up if previously thick.

The course of Turret and Lyon is from west to east.

True "audibility" is best described by the saying:

A good hearing day is a sign of wet.
Much sound in the air is a sign of rain.

This last exactly conveys the kind of sound referred to. The reason why audibility is produced is unknown, but the old idea that it is due to excessive moisture in the air is certainly erroneous; in several instances we have observed that the upper current of the wind appeared to be moving much faster than the lower, and perhaps that may have something to do with it. When the gradients are very steep, a little rain sometimes falls with straight isobars, generally in light showers, with a hard sky.

Though as a matter of convenience we have described the sequence of weather as we proceed from high to the low pressure, it must be clearly understood that it does not represent the sequence of weather to a single observer, but rather what the weather will be simultaneously in different parts of the country; for instance, that if there are cirrus clouds in London there may perhaps be a lurid sky in Edinburgh. The prognostic value of all is due to the fact that a depression will soon form which will probably extend over the whole country.

ANTICYCLONE PROGNOSTICS.

Having spoken of cyclones, we shall now direct our attention to anticyclones. In the daily weather charts we sometimes see but two or three isobars, and these are a considerable distance apart, and extend over a large area. The pressure is highest in the centre, and gradually diminishes outwards. The air is calm and cold in the central area, but on the outskirts the wind blows in the direction of the hands of a watch. These are the special features of an anticyclone. The weather in an anticyclone is almost the opposite of that in a depression; that in the latter being wet and unsettled, while that in the former is usually settled and fine, with more or less haze in the air. Another great difference is that while depressions are generally rapid in their movements, anticyclones are nearly stationary; and it is for this reason that they are associated with "settled" fine weather. In the area of high pressure the characteristic features are largely modified by what is termed "radiation" weather, as determined by diurnal and seasonal variations; and as the pressure is nearly stationary, these diurnal and seasonal variations are the chief features of anticyclonic weather.

We shall now give the prognostics due to the variations in some detail, Fig. 5. The sky being generally clear and the air calm, the temperature is high in the day and low at night. In summer brilliant sun

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shine prevails during the day, and at night there is heavy dew, and in low-lying places mist.

Heavy dews in hot weather indicate a continuance of fair weather, and no dew after a hot day foretells rain.

If mist rises in low ground and soon vanish, expect fair weather.

Thin, white, fleecy, broken mists, slowly ascending the sides of a mountain whose top is uncovered, predicts a fair day.

When the mist creeps up the hill,
Fisher out and try your skill.

When in the morning the dew is heavy and remains long on the grass, when the fog in the valleys is slowly dissipated and lingers on the hill-side, when the clouds seem

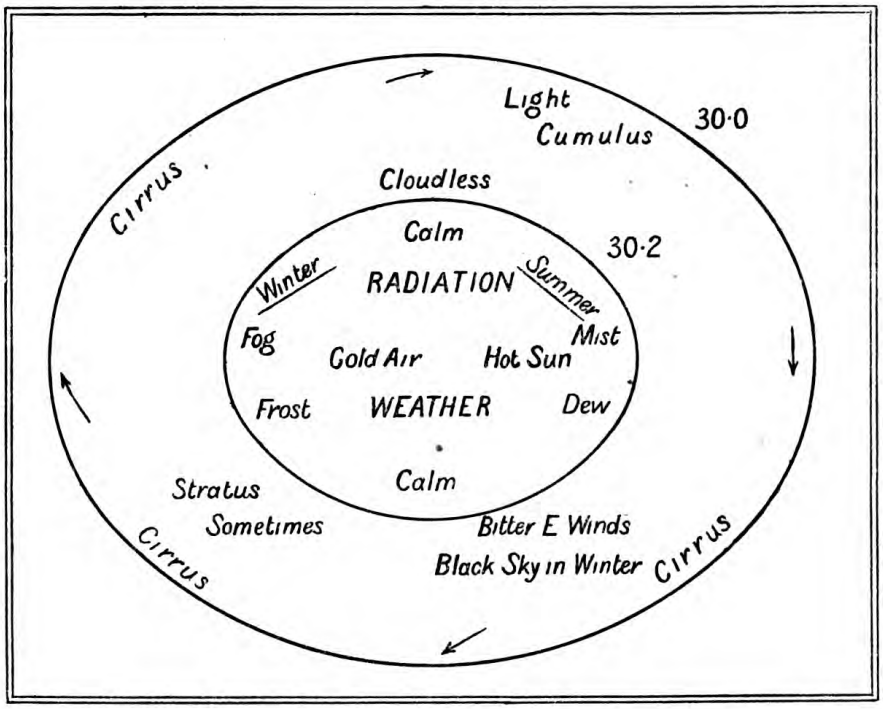

Fig. 5.—ANTICYCLONE PROGNOSTICS.

to be taking a higher place, and when a few loose cirro-strati float gently along, serene weather may confidently be expected for the greater part of that day.

These all refer to night radiation, mist being dispersed by the sun's rays. Fine, light, genial weather raises the spirits and exerts an enlivening influence not only on human beings but also on animals, birds, insects, &c. Hence the saying:

If larks fly high and sing long, expect fine weather.

When sea-birds fly out early and far to seaward, moderate winds and fair weather may be expected.

If rooks go far abroad it will be fine.

Cranes soaring aloft and quietly in the air foreshow fair weather.

If kites fly high, fine weather is at hand.

Wild geese, wild geese, ganging out to sea,
Good weather it will be.

When owls whoop much at night, expect fair weather.

Bats, or flying mice, coming out of their holes quickly after sunset and sporting in the open air premonstrates fair and calm weather.

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Chickweed expands its leaves boldly and fully when fine weather is to follow.

In winter frost is generally prevalent in the central area of an anticyclone, accompanied frequently by fog, which is most dense in the neighborhood of large towns. This is all due to the radiation of calm weather.

White mist in winter indicates frost.

In the evenings of autumn and spring vapor arising from a river is regarded as a sure indication of coming frost.

This comes from the air being colder than the water.

When fires burn faster than usual, and with a blue flame, frosty weather may be expected.

This is caused by reduced temperature of the outer air making a better draught in the chimney.

In winter when the sound of the breakers on shore is unusually distinct, frost is indicated.

These last two prognostics are explained by the fact that the atmosphere is very dense and still in an anticyclone.

In those places where fog does not form the sky will often be clear at night, whence—

Clear moon,
Frost soon.

In winter when the moon's horns are sharp and well defined, frost is expected.

The wind in an anticyclone system blows in the direction of motion of the hands of a watch, but slightly outwards, and as the anticyclone is nearly always stationary, the wind blows from the same quarter for several days together.

When the wind turns from northeast to east and continues two days without rain, and does not turn south the third day, nor rain the third day, it is likely to continue northeast for eight or nine days, all fair, and then come to the south again.

If the wind is northeast three days without rain,
Eight days will pass before south wind again.

The wind is usually very light in force.

It is said to be a sign of continued good weather when the wind so changes during the day as to follow the sun.

If wind follows sun's course, expect fair weather.

This "veering with the sun," as it is called, is the ordinary diurnal variation of the wind, which in this country is very obvious with the shallow gradients of an anticyclone. At sea-side places in summer very often "the wind is in by day and out by night," which is the equivalent of the land and sea breezes of the tropics. Like two preceding prognostics, it is only in anticyclones that local currents of air, probably due to unequal heating of sea and land, can override the general circulation of the atmosphere in this country.

Sometimes in winter, on the southern side of the anticyclone, bitter east winds, with a black-looking sky, will prevail for several days together, when it may be truly said:

When the wind is in the east
'Tis neither good for man nor beast.

Sometimes also the sky in this region will be covered with a uniform stratus cloud, which is not of any great thickness, and when breaks occur, the sun is seen to be shining brightly above.

On the northeast side of the anticyclone in summer, light, cumulus

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clouds frequently form in the morning, gradually increase till after the maximum temperature has passed, and then decrease and disappear towards evening.

If woollen fleeces spread the heavenly way,
Be sure no rain disturbs the summer day.

When the cumulus clouds are smaller at sunset than they were at noon, expect fair weather.

Clouds small and round like a dapple gray with a north wind, fair weather for two or three days.

The cirrus cloud is usually seen on the outskirts of an anticyclone, if in the front it gradually disappears, but if in the rear it is a sign that there will be a change in the weather, hence:

If cirrus clouds dissolve and appear to vanish, it is an indication of fine weather.

If cirrus clouds form in fine weather with a falling barometer, it is almost sure to rain.

When, after a clear frost, long streaks of cirrus are seen with their ends bending towards each other as they recede from the zenith, and when they point to the northeast, a thaw and a southwest wind may be expected.

Both these latter prognostics refer to a depression coming in and "breaking up the weather" and the anticyclone.

CONCLUSION.

We have endeavored in this paper to deal with such prognostics as can be readily classified, but besides these there are many more, what may be termed unclassified prognostics. Our object has been to show the relation between certain prognostics and certain forms of isobars, and by this means to assign them their proper value. It cannot be doubted that if careful attention were given to the observation of the aspect of the sky, the different forms of cloud and local signs, these would prove, even in conjunction with a single barometer reading, of great assistance in predicting the weather. Of course those persons who live in the neighborhood of large towns labor under a great disadvantage, as the sky has nearly always a dirty appearance, and is frequently obscured by smoke. For this reason London is about the worst place to reside in for studying the weather.

We have only been able to give the rudiments of the new method of considering prognostics, for the method is capable of great extension, and we hope that we may succeed in interesting some of the Fellows sufficiently to induce them to observe prognostics in conjunction with the daily weather charts.

In conclusion, we would venture to express our opinion that the observation of local signs of weather ought to form a most important element in all arrangements for telegraphic reporting for the purpose of forecasts, and that the duty should be impressed upon the observers of reporting at once important changes in the local and general signs of the weather. Great attention should also be paid to the observation of the forms and motion of clouds, and as considerable lack of knowledge prevails, even on the part of good observers, regarding the different forms and modifications of clouds, we are glad to see that the meteorological office has already commenced systematic observations of cirrus clouds. Telegraphic observers should be specially instructed in cloud observations and prognostics by some one thoroughly well versed in the subject, so that there may be strict uniformity among all the observers, but we admit that the proposal presents serious difficulties in the way of realization.

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Theoretically, when the isobars are well defined we ought to be able to write down the prognostics which might be visible, but practically we cannot do so. Besides, there are sometimes cases of isobars which have no well-defined shape, but with which thunder-storms or heavy showers often occur. These, as is well known, do not affect the barometer, but are abundantly forewarned by the commonest prognostics, and as the rainfall is usually heavy in them the failure of the forecast which omits to notice them is very conspicuous.

The scope of this paper precludes us from entering into the complicated question of the non-cyclonic rainfalls in this country. It will be enough to state that the prognostics which precede them are rather those associated with broken weather, such as bright sunrises or heavy clouds banking up without the barometer falling, than the muggy, dirty weather of a cyclone front. The warning they give is also much shorter, rarely more than three or four hours, if so long.

The result of this paper may be summarized as follows:

The authors explain over one hundred prognostics by showing that they make their appearance in definite positions relative to the areas of high and low atmospheric pressure shown in synoptic charts. The method adopted not only explains many that have not hitherto been accounted for, but enables the failure as well as the success of any prognostic to be traced by following the history of the weather of the day on a synoptic chart. The forms discussed are cyclones, anticyclones, wedge-shaped and straight isobars. The details of weather in the last two are now described for the first time. They also point out that prognostics will never be superseded for use at sea and other solitary situations, and that prognostics can be usefully combined with charts in synoptic forecasting, especially in certain classes of showers and thunder-storms which do not affect the readings of the barometer.*

DISCUSSION.

Dr. Tripe said that some of the Fellows might think the paper hardly suitable for reading at a meeting or printing in the journal of a scientific society, but many of them took an interest in such papers, because they were comparatively simple. In reference to the table of solar and lunar halos in connection with rainfall, it appeared that rain was pretty sure to fall within three days after the occurrence of a lunar halo, and to the extent of 80 per cent., as regards solar halos, on the first or second day.† He considered visibility was a good prognostic, and afforded a more certain indication of the speedy occurrence of rain than even mare's-tails. What caused visibility was unknown to him. The prediction of rain from damp walls depended chiefly on

* The prognostics quoted in the paper have been mostly taken from the following works:

"Popular Weather Prognostics of Scotland." By Arthur Mitchell, M. D., Edinburgh, New Philosophical Journal. "Weather Lore." By Richard Inwards, F. M. S., London, 1869. "A Handbook of Weather Lore." By Rev. C. Swainson, M. A., Edinburgh, 1873.

† The calculation on which his remark on halos was founded is as follows:

Rain occurred in connection with—

	Solar halos.			Lunar halos.		
Direction of wind	S.	SW.	W.	S.	SW.	W.
Number of observations	22	28	59	8	11	21
Rain within forty-eight hours.....per cent..	79	78	81	50	91	76
Rain on third day.....do....	9	3	7	40	9	0

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the previous weather; a sudden change from cold to warm would have the effect of making walls condense the moisture contained in the air without approaching rain. The falling of soot down a chimney was, he thought, hardly a good prognostic; it was caused to a great extent by the direction and force of the wind, and also the angle at which the wind struck the chimney-pot. He considered the paper a good one, and a step in the right direction.

Dr. Marces said, with regard to visibility being a sign of rain, he had himself observed on the borders of the Lake of Geneva, that if the mountains on the opposite side of the lake could be seen very distinctly on a cloudy day, rain was likely to fall within a short period. On such occasions the coast appeared much nearer than usual. The late Professor de la Rive, of Geneva, ascribed this phenomenon to the atmospheric dust being hygrometric and becoming transparent in damp weather from the moisture it absorbed.

Mr. Stanley remarked that solar and lunar halos depended upon the moisture in the air, and that a sign of rain could be better assured by reference to the hygrometers. He thought that fine weather in front of a cyclone was due to increase of pressure, and therefore of temperature, caused by the onward march of the cyclone. This increase of temperature was known to render sound more audible, and by making the air clearer distant objects became more visible. It was known that condensed vapors disappeared under a slight increase of pressure, just as, conversely, under the ordinary air-pump, vapors appeared on a diminution of pressure. He considered that the fall of rain in the centre of a cyclone was caused by the increase of pressure due to the tangential action of the air in the cyclone. The straight isobars described in the paper, were, he thought, in segments of a very large cyclone, which was general in all large displacements of air.

Captain Toynbee thought that the great clearness of the air experienced when isobars took the wedge-shaped form, was due to the fact that such isobars represented a ridge of high barometrical pressure, which lay between two cyclonic systems, and that the high pressure of the ridge was maintained by air which had previously risen in front of the advancing cyclonic system, when it had lost most of its moisture, and now came down as a dry, pure, clear, northwesterly wind. Hence the clearness of the air was, where wedge-shaped isobars were being experienced, a sign of rain, because it indicated the fact that a cyclonic system would soon advance over the same position. This explanation was based upon the Rev. W. Clement Ley's theory of the motion of air in cyclonic systems.

Mr. Scott thought that it might have been desirable to give the authorities or sources from which some of the principal sayings had been derived, in order to show which were general and which were of more local import. Reference had also been made to the prevalence of bad smells with a falling barometer, and to the fact that rheumatic affections and neuralgia were felt especially at such a time; but no attempt had been made to explain the connection of those phenomena. It was a well-known fact that a sudden reduction of pressure, such as that experienced by divers when they returned to the surface of the water, produced neuralgic affections. The authors had described straight line isobars and their accompanying prognostics, but only for west winds, for pressure lowest in the north. He should be glad to see the list of prognostics extended so as to include those for straight isobars with east winds when the pressure was lowest in the south. With regard to refraction being a prognostic of rain, in some cases it was a prognostic

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of easterly winds, and was recognized as such in the west of Cornwall. In the past summer he had himself verified this latter statement on several occasions at Scilly and the Land's End. The authors, he thought, spoke a little too strongly when they said the barometer gave no sign of thunder-storms. The type of isobar which accompanied these was well known; it exhibited small undulations or incipient bights representing imperfectly formed secondary depressions. At the same time he must say that no one yet, in Europe at least, had been able to forecast correctly the amount of rain for a given day in a given place. The probability of some rain could be recognized, but no attempt could be made to estimate its amount. This was apparently owing to ignorance of the conditions of the upper atmosphere.

Mr. Dyason expressed an opinion that the formulaters of weather prognostics in the past must have been color-blind, an affliction from which he was not sure that the authors of the paper were exempt. "Where are the scarlet, orange, green or gold harmonious, and the general glow?" He had endeavored in a series of sketches of skies and clouds to portray the colors as they presented themselves to his mind. In relation to visibility he referred to the Lakes of Geneva and Lucerne, quoting the lines used in the locality of Mont P

> Si Pilate a un chapeau, le temps se mettra au beau;
> A-t-il un collier, on peut la montée risquer;
> Mais s'il porte son épeé, il y aura une ondée.

Mr. Dyason exhibited a sketch of the Matterhorn taken south of Zermatt during intense visibility. He did not admit "that London was a bad place for skies;" those he now exhibited were sketched in a north-western suburb of the metropolis.

Professor Archibald considered that some of theprognostics mentioned in the paper required more explanation. For instance, it was stated that candles burned with an unsteady light in damp weather, but no reason was given why they should do so. One very good prognostic in use in Scotland appeared to have been omitted, namely: "The northwest wind is a gentleman, and goes to bed." He would also like to know why fires burned with a blue flame in frosty weather. He considered that visibility was often a local phenomenon connected with temperature. He had noticed intense visibility and a fog in juxtaposition on that very day, when travelling from Tunbridge Wells to London.

Mr. Symons pointed out that although it might be useful to trace the origin of some of the weather proverbs, it would be extremely difficult and perhaps impossible, as some of them were ancient. With regard to the connection between lunar halos and rainfall, he thought that it would be curious, considering the large number of wet days in this country, rain falling on an average every other day, if some of them did not happen to follow lunar halos. Respecting doors and windows sticking in damp weather, this was rather the result of existing damp than a forecast of more damp to come; for if existing damp foretold coming damp it was not easy to see how dry weather could ever occur. With regard to visibility, he was glad the authors had referred to Mr. Cruickshank's observations at Aberdeen, extending over twenty-one years, and Mr. Symons thought that much might be learned from a thorough discussion of similar observations.

Mr. Wilson directed attention to Professor Tyndall's theory, that audibility was due to the homogeneity of the atmosphere.

Mr. C. Harding thought that the paper would be useful to an isolated observer, whose forecast was dependent upon his own observation. It

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appeared to him that in classifying the prognostics, the authors of the paper had rather begged the question—given a certain occurrence which was admittedly a prognostic of bad weather; this seems to have been consequently classed as belonging to the front half of a cyclonic disturbance. He suggested that with each occurrence of the prognostic in question it would be better to note the existing conditions of atmospheric distribution, and, finally, to classify by actual observation. He stated that the form of isobars described by the authors as wedge-shaped had been referred to many years ago in various publications, by Captain Toynbee, as a "ridge" of pressure. Some distinction should have been made between the weather of anticyclone in summer and in winter, as it differed materially. Audibility had been referred to as a sign of bad weather; he might say that it was notorious in ballooning that for a given distance sounds could be heard more distinctly than on the earth, and in a recent ascent he had noticed that the shrill voices of children were much more audible than the voices of grown persons.

Mr. Abercromby, replying, said that Doctor Tripe's analysis of halos was interesting, but that if rain did not fall within twenty-four hours after a halo, any rain after that would not be due to the cyclone which produced the halo, but to a new one. Damp walls were certainly due to excess of vapor, not to rapid changes of temperature. Soot was doubtless blown down by wind, but when used as a prognostic it rather referred to soot falling out of doors, and was to be attributed to excessive damp. Halos were unquestionably due to the presence of a thin film of ice-formed cloud, and not merely to the amount of moisture in the air. This ice film was only formed in front of cyclones or thunder-storms, and for that reason was a sign of rain. With regard to visibility alluded to by several speakers, he could not admit that it was due to excessive moisture, for the hygrometer showed that it was not so. He agreed with Captain Toynbee, so far as believing that there was a descending current of dry, clear air with a northwest wind on the front side of a "wedge," but he doubted if that was the whole explanation. In the centre of anticyclones there was also a descending current of dry air, but no "visibility." The diagram of straight isobars was given for westerly winds, as that type was by far the commonest. Like every other shape of isobars, the details varied with the type of weather in which they occurred. In an elementary paper it was considered inexpedient to go into so much detail. In the case mentioned by Mr. Scott, isobars trending east and west, but sloping towards the south, the same broad features as given in the diagram would be reproduced, but with a harder sky and an east or northeast wind. The prognostics would, however, be much more likely to fail, for cyclones in the northerly or easterly types, to which such isobars would belong, did not follow with the same regularity as in the westerly type. The refraction, which was a prognostic of east winds on the southwest of an anticyclone, was very different from the refraction on the northwest edge of a cyclone, which portended a fresh storm. The chief difference was the haziness of the horizon in the former case as compared with its visibility in the latter. The latter kind was hardly known on the south coast of England. He strongly suspected that the condition common to both kinds was a relatively cool air over a comparatively warm sea. The type of isobar which exhibited incipient "bights" or imperfect secondaries, was doubtless that most frequently associated with thunder-storms, but the kind of thunder-storms alluded to in the paper as showing no trace on the isobars undoubtedly occurred. Any reference to cloud or sky colors was intentionally omitted in this paper, as also to prognostics relating to diurnal winds. Candles burned

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badly before rain, probably owing to a stagnant, damp air. Blue flame was owing to the formation of carbonic oxide when a fire burned very red on a frosty night. Doors and windows sticking in damp weather indicated rain because damp preceded the rain area of a cyclone.

The idea suggested by Mr. C. Harding, that because certain prognostics were known to be associated with bad weather, therefore they were classed as belonging to the front of a cyclone, was entirely erroneous, and exactly opposite to what had been done. The method Mr. Abercromby had adopted for the last twelve years had been, when he observed a good example of any prognostic, to make a note and put it by with the nearest synoptic chart for the day, or often with both the preceding and succeeding charts. When a sufficient number had been collected, the charts were examined, and the necessary deductions drawn from them. Thus the charts were classified according to the prognostics associated with them. The results of all these researches had been embodied in the paper, and the important fact deduced was that every portion of every shape of isobars had a characteristic weather and appearance. The general fact of a "wedge" being associated with fine weather had been noticed many years ago by Captain Toynbee, but the details of weather in different portions, and their relations to prognostics, had a considerable amount of novelty.

Mr. Marriott said that it would be impossible to give the authorities or sources from which all the sayings in the paper had been derived, but the foot-note on page 23 contained a list of the works from which the quotations had been made. The authors on the present occasion had only dealt with certain classified prognostics; and this would explain why many others had not been noticed. They hoped, however, to deal with these in a future paper.

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POPULAR WEATHER PROVERBS AND PROGNOSTICS.

PROVERBS RELATING TO ANIMALS.

Ass.

An old adage says:

When the ass begins to bray,
Be sure we shall have rain that day.

Beaver.

In early and long winters, the beaver cuts his winter supply of wood and prepares his house one month earlier than in mild, late winters.

Bears.

When bears lay up food in the fall, it indicates a cold winter.

If the tracks of bear are seen after the first fall of snow, an open, mild winter may be expected.

Bears and coons are always restless before rain.

The bear comes out on the 2d of February, and if he sees his shadow, he returns for six weeks.

Expect rain when dogs eat grass.

Buck's Horn.

If dry be the buck's horn
On Holyroad morn,
'Tis worth a vest of gold;
But if wet it be seen
Ere Holyroad e'en,
Bad harvest is foretold.

Bull.

If the bull leads the van in going to pasture, rain must be expected; but if he is careless and allows the cows to precede him, the weather will be uncertain.

Cats.

When cats sneeze it is a sign of rain.

The cardinal point to which a cat turns and washes her face after a rain shows the direction from which the wind will blow.

If the cat is basking in the sun of February, it must go again to the stove in March. (German.)

When cats are snoring foul weather follows.

When cats are washing themselves fair weather follows.

Cats with their tails up and hair apparently electrified indicate approaching wind.

It is a sign of rain if the cat washes her head behind her ear. (Old lady on Cape Cod.)

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Cats clean table-legs, tree-trunks, &c., before storms.

When a cat scratches itself, or scratches on a log or tree, it indicates approaching rain.

If sparks are seen when stroking a cat's back, expect a change of weather soon.

When a cat washes her face with her back to the fire expect a thaw in winter.

When cats lie on their head with mouth turned up expect a storm.

Cats purr and wash; dogs eat grass; sheep eagerly eat and turn in the direction of the wind-point; oxen sniff the air, and swine are restless before rain.

Cats have the reputation of being weather-wise, an old notion which has given rise to a most extensive folk-lore. It is almost universally believed that good weather may be expected when the cat washes herself, but bad when she licks her coat against the grain, or washes her face over her ears, or sits with her tail to the fire. As, too, the cat is supposed not only to have a knowledge of the state of the weather, but a certain share in the arrangement of it, it is considered by sailors to be most unwise to provoke a cat. Hence they do not much like to see a cat on board at all, and when one happens to be more frisky than usual they have a popular saying that the cat has a gale of wind in her tail. A charm often resorted to for raising a storm is to throw a cat overboard; but, according to an Hungarian proverb, as a cat does not die in water its paws disturb the surface; hence the flaws on the surface of the water are named by sailors "cat's-paws." In the same way also a large flurry on the water is a "cat's-skin;" and in some parts of England a popular name for the stormy northwest wind is the "cat's-nose."

Chipmunk.

In cold and early winters the chipmunk is very abundant on the south shore of Lake Superior, and are always housed for the winter in October. In short and mild winters they are seen until the 1st of December.

Cattle.

When a storm threatens, if cattle go under trees it will be a shower; if they continue to feed, it will probably be a continuous rain. (New England.)

When cows fail their milk, expect stormy and cold weather.

When cows bellow in the evening, expect snow that night.

In Texas, when cattle hasten to timber, expect a "norther."

When a cow stops and shakes her foot, it indicates that there is bad weather behind her.

When cows refuse to go to pasture in the morning, it will rain before night.

When cattle collect near the barn long before night and remain near the barn till late in the morning, expect a severe winter.

Expect rain when cattle low and gaze at the sky.

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Cattle are also said to foreshow rain when they lick their fore-feet, or lie on the right side, or scratch themselves more than they usually do against posts or other objects.

When cattle go out to pasture and lie down early in the day, it indicates early rain.

Deer.

When deer are in gray coat in October, expect a severe winter.

Dogs.

Dogs digging or making deep holes in the ground are said to indicate rain thereby.

If a dog howls when some one leaves the house it indicates rain.

When a dog or cat eats grass in the morning it will certainly rain before night.

When dogs eat grass rain follows.

Dogs refusing meat is an indication of rain.

Donkey.

When the donkey blows his horn
'Tis time to house your hay and corn.

Domestic Animals.

Domestic animals stand with their heads from the coming storm.

Flying-squirrels.

When the flying squirrels sing in midwinter, it indicates an early spring.

Foxes.

Foxes barking at night indicates storm.

Ground-squirrel.

When the ground-squirrel is seen in winter, it is a sign that snow is about over.

Ground-hog.

If on Candlemas day (2d February) it is bright and clear, the ground-hog will stay in its den, thus indicating that more snow and cold are to come; but if it snows or rain he will creep out, as the winter has ended. (German.)

Goat.

The goat will utter her peculiar cry before rain.

Hares.

Hares take to the open country before a snow-storm.

Hogs.

Hogs pick and store straws, leaves, &c., before cold weather.

Hogs rubbing themselves in winter indicates an approaching thaw.

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Horse-hair.

If the hair of a horse grows long early, expect an early winter.

The hair of a horse appears rough just before rain.

Horses and cattle.

When horses and cattle stretch out their necks and sniff the air it will rain.

Horses, as well as some other domestic animals, foretell the coming of rain, by starting more than ordinary, and appearing in other respect restless and uneasy on the road.

Horses and mules very lively without apparent cause indicate cold.

When horses assemble in the corner of a field, with heads to leeward, expect rain.

Kine, when they assemble at one end of a field with their tails to windward, often indicate rain or wind. During the dead calm before a storm we may often see them extending their nostrils, with the head upwards, snuffing the air; this prognostic has been noticed of old by Virgil, and after him by Lord Bacon and others.

Mole.

If the mole dig his hole two feet and a half deep, expect a very severe winter; if two feet deep, not so severe; if one foot deep, a mild winter.

When the moles throw up the earth, rain follows soon.

Musk-rat.

The musk-rats build their houses twenty inches higher and very much warmer in early and long winters than in short ones.

Noise.

Animals making unusual noise indicates change of weather.

Oxen and Sheep.

When oxen or sheep collect together as if they were seeking shelter, a storm may be expected. (Apache Indians.)

Pigs.

Pigs uneasy, grunting, and huddling together, indicate cold.

When pigs busy themselves gathering leaves and straw to make a bed (in fall), expect a cold winter.

When in winter pigs rub against the side of their pen, it is a sure sign of a thaw.

If the forward end of a pig's melt is thicker than the other end, the first part of winter will be the colder. If the latter end is thicker, the last part of winter will be the colder.

When pigs go about with sticks in their mouths, expect a "norther" in Texas.

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Prairie Dogs.

Prairie dogs bank up their holes with grass and dirt before a storm; if they are playful, it is a sign of fair weather.

Partridges.

Partridges drum only in fall when a mild and open winter follows.

Rabbits.

In cold, long winters rabbits are fat in October and November; in mild and pleasant winters they are poor in those months.

Rabbits seek the woods before a severe storm.

Rats and Mice.

Much noise made by rats and mice indicates rain.

Swine.

If swine be restless and grunt loudly, if they squeal and jerk up their ears, there will be much wind. Whence the proverb, "Pigs can see the wind."

Swine make lairs on south side of shelter before cold weather.

Squirrels, etc.

When squirrels and small animals lay away a larger supply of food than usual, it indicates that a long and severe winter will follow.

When squirrels lay in a winter supply of nuts, expect a cold winter.

When he eats them on the tree,
Weather as warm as warm can be.

When squirrels are scarce in the autumn, it indicates a cold winter.

Sheep.

If sheep ascend hills and scatter, expect clear weather.

Sheep bleat and seek shelter before snow.

You may shear your sheep
When the elder blossoms peep.

Sand Mole.

The sand mole makes a mournful noise just before frost.

Spaniels.

When the spaniel sleeps it indicates rain.

Wolves.

Wolves always howl more before a storm; deer and elk come down from the mountains at least two days before a storm.

If the wolves howl and foxes bark during the winter, expect cold weather.

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If wolves howl in the evening, expect a "norther." (Texas.)

Mammals as Weather Prophets.

Dr. C. C. Abbott showed that the autumnal habits of certain animals that are popularly supposed to be indicative of the character of the coming winter could not be depended upon, although by the majority of people living in the country they were considered as sure indications of what the winter would prove to be. Dr. Abbott had kept a careful record, extending over twenty years, regarding the building of winter houses by musk-rats, the storing of nuts by squirrels, and other habits of these mammals, and had found that the habits referred to, or their omission in certain autumns, bore no relation to the character of the coming winter. (Trenton Nat. Hist. Soc., meeting February 13, 1883.)

PROVERBS RELATING TO BIRDS.

Birds of Passage.

When birds of passage arrive early in their southern passage, severe weather may be looked for soon.

When birds cease to sing, rain and thunder will probably occur.

If birds in general pick their feathers, wash themselves, and fly to their nests, expect rain.

A dry summer will follow when birds build their nests in exposed places.

Birds flying in groups during rain or wind indicate hail.

Birds and fowl oiling feathers indicate rain.

Birds singing during rain indicate fair weather.

If birds in the autumn grow tame,
The winter will be too cold for game.

Bats.

Bats flying late in the evening indicate fair weather.

Bats who speak flying tell of rain to-morrow.

If bats flutter and beetles fly about, there will be a fine morrow.

Blackbirds.

Blackbirds' notes are very shrill in advance of rain.

Blackbirds flying south in autumn indicate an approaching cold winter.

Blackbirds bring healthy weather.

Blackbirds flocking in the fall indicate a spell of cold weather.

Buzzards.

A solitary turkey-buzzard at a great altitude indicates rain.

Buzzards flying high indicate fair weather.

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Bluebirds.

When bluebirds twitter and sing, they call to each other of rain.

Chickens.

Chickens, when they pick up small stones and pebbles and are more noisy than usual, afford, according to Aratus, a sign of rain. Other authors prognosticate the coming of rain from the habit fowls have of rubbing in the dust and clapping their wings.

When chickens crow before sundown, it is a sign of rain next day.

Chickens are said to be very noisy just before rain and cocks to crow at unusual hours.

If chickens go out in the rain, it will rain all day.

When chickens come down from roost at night, rain will soon follow.

During rain if chickens pay no attention to it, you may expect a continued rain; if they run to shelter, it won't last long.

When chickens light on fences during rain to plume themselves, it will soon clear.

Chimney Swallows.

When chimney swallows circle and call, they speak of rain. (Zuñi Indians.)

Cocks.

Cocks are said to clap their wings in an unusual manner before rain, and hens to rub in the dust and seem very uneasy.

If the cock moult before the hen,
We shall have weather thick and thin;
But if the hen moult before the cock,
We shall have weather hard as a block.

If the cock crows more than usual or earlier, expect rain.

Cormorants.

When cormorants fly from the sea and sea fowls seek their prey in pools or ponds, expect wind.

Cranes.

If cranes appear early in the autumn, expect a severe winter.

There will be no rain the day the crane flies down the creek.

When cranes make a great noise or scream, expect rain.

Cranes follow the last frost.

If cranes come early in autumn, expect a severe winter.

If cranes place their bills under their wings, expect rain.

When the cranes early (in October) fly southward, it indicates a cold winter.

Crows.

One crow flying alone is a sign of foul weather; but if crows fly in pairs, expect fine weather.

If crows fly south, a severe winter may be expected; if they fly north, the reverse.

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If the crows make much noise and fly round and round, expect rain.

Cuckoo.

If the cuckoo is heard long after St. John's day, it means harsh times. (German.)

When the cuckoo comes to the bare shorn,
Sell your cow and buy your corn;
But when he comes to the full bit,
Sell your corn and buy your sheep.

In April he opens his bill;
In May he sings all day;
In June he alters his tune;
Come August, go he must.

Cuckoos hallooing in low lands indicate rain; on high lands indicate fair weather.

Dove.

Don't plant your corn when the turtle-dove cries.

Domestic Fowl.

Domestic fowls dress their feathers when the storm is about to cease.

Domestic fowls look toward the sky before rain.

Domestic fowls stand on one leg before cold weather.

When fowls collect together and pick or straighten their feathers, expect a change of weather.

When fowls roost in day-time expect rain.

February Birds.

If birds caught in February are fat and sleek, it is a sign of more cold weather.

Finch.

When the finch chirps, rain follows.

Geese.

Wild geese fly high in pleasant weather and low in bad weather.

The whiteness of a goose's breast-bone indicates the amount of snow during winter.

If the November goose bone be thick,
So will the winter weather be;
If the November goose bone be thin,
So will the winter weather be.

A very heavy plumage of geese in fall indicates an approaching cold winter.

Everything is lovely, and the goose hawks high (not hangs high, as is usually stated). Geese flying high is a sign of fair weather.

If the breast bone of a goose is red, or has many red spots, expect a cold and stormy winter; but if only a few spots are visible, the winter will be mild.

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When you see geese in water washing themselves, expect rain.

Geese wash and sparrows fly in flocks before rain.

When geese fly at ten o'clock, or in the first part of the night, it is a sign of cold weather.

If domestic geese walk east and fly west, expect cold weather.

When geese and ducks go into the water and flap their wings, throwing the water over their backs, rain is approaching.

When geese or ducks stand on one leg, expect cold weather.

To read the winter of any year take the breast-bone of a goose hatched during the preceding spring. The bone is translucent and it will be found to be colored and spotted. The dark color and heavy spots indicate cold. If the spots are of light shade and transparent, wet weather, rain, or snow may be looked for.

Grouse.

When grouse drum at night, Indians predict a deep fall of snow.

Gulls.

Gulls will soar to lofty heights, and circling round utter shrill cries before a storm.

Hawk.

When men-of-war-hawks fly high, it is a sign of a clear sky;
When they fly low, prepare for a blow.

Hedge Sparrow.

If the hedge sparrow is heard before the grape-vine is putting forth its buds, it is said that a good crop is in store.

Heron.

When heron fly up and down as in doubt where to rest, expect rain.

Hen.

When the hen crows, expect a storm within and without.

Jackdaws.

These birds frequent the flocks of rooks, and with them go out to feed, as if they were aware of the superior sagacity of the rook in finding out the most productive pasture, and had learned to avail themselves of it. Starlings sometimes do the same. Sometimes before the change of weather the daws make a great noise in the chimneys wherein they build, and the sound coming down the flue is distinctly heard in the chamber.

Jackdaws are unusually clamorous before rain.

Kites.

Kites flying unusually high are said to indicate fair weather.

Larks.

Larks, when they sing long and fly high, forebode fine weather.

As long as the lark is heard before Candlemas day (in Europe), that long will it be silent afterward on account of cold yet to come. (German.)

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Loon.

Hunters say that the direction in which the loon flies in the morning will be the direction of the wind next day..

Larks.

Field larks, congregating in flocks, indicate severe cold.

Magpies.

Magpies, flying three or four together and uttering harsh cries, predict windy weather.

Missel Thrush.

Missel thrush have been observed to sing particularly loud just before a storm.

Martins.

When martins appear, winter has broken.

No killing frost after martins.

Martins fly low before and during rainy weather.

Migratory.

Migratory birds fly south from cold and north from warm weather. When a severe cyclone is near, they become puzzled and fly in circles, dart in the air and can be easily decoyed. (Observer on North Carolina coast.)

Owls.

Owls hooting indicate rain.

If owls scream in foul weather, it will change to fair.

If owls hoot at night, expect fair weather.

The various omens which vulgar credulity has attached to the hooting and screaming of this bird deserve particular attention. When an owl hoots or screeches, sitting on the top of a house or by the side of a window, it is said to foretell death. The fact seems to be this: The owl, as Virgil justly observes, is more noisy at the change of weather, and as it often happens that patients with lingering diseases die at the change of weather so the owl seems, by a mistaken association of ideas, to forbode the calamity. Both the screech owl and the howlet seem to be alluded to among the harmful fowls in Spencer's Fairy Queen.

Screech Owl.

A screeching owl indicates cold or storm.

Parrots.

Parrots whistling indicate rain.

It is said that parrots and canaries dress their feathers and are wakeful the evening before a storm.

Peacocks.

When the peacock's distant voice you hear,
Are you in want of rain? Rejoice, 'tis almost here.

When the peacock loudly bawls
Soon we'll have both rain and squalls.

If the peacock cries when he goes to roost, and, indeed, much at any time, it is a sign of rain.

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When peacocks and guinea fowls scream and turkeys gobble, expect rain.

The squalling of the peacock by night often foretells a rainy day.

Peafowl utter loud cries before a storm, and select a low perch.

Petrels.

Petrels gathering under the stern of a ship indicate bad weather.

The stormy petrel is found to be a sure token of stormy weather. When these birds gather in numbers under the wake of a ship, the sailors are sure of an impending tempest.

Pintado.

Before rain the pintados, or guinea fowls called comebacks, squall more than usual.

Pigeons.

Pigeons return home unusually early before rain.

It is a sign of rain when pigeons return slowly to the dove-houses before the usual time of day.

Prairie Chickens.

Prairie chickens coming into the creeks and timber indicate cold weather.

When the prairie chicken sits on the ground with all its feathers ruffled, expect cold weather.

Quail.

When quails are heard in the evening, fair weather is indicated for next day.

Quails are more abundant during an easterly wind.

Red Breasts.

Red breasts grow bolder and perch against the window in advance of unusually severe weather.

Robins.

First robins indicate the approach of spring.

Long and loud singing of robins in the morning denote rain.

Robins will perch on the topmost branches of trees and whistle when a storm is approaching.

Rooks.

If rooks fly irregularly and high, and seem to fall, expect rain.

Rooks dart and swoop through the air, sparrows group together and keep up a discordant chirping before rain.

Rooster.

A crowing rooster during rain indicates fair weather.

When the roosters go crowing to bed they will rise with watery head.

If a rooster crows on the ground, it is a sign of rain; if he crows on the fence, it is a sign of fair weather.

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Sea Birds.

If sea birds fly towards land and land birds toward the sea, expect wind without rain.

Sea-gulls.

If sea-gulls fly inland, expect storm.

When sea-gulls fly to land, a storm is at hand.

Snow-birds.

When snow-birds gather in flocks and light on fences and hedges, expect rain.

Storks.

If storks and cranes fly high and steady, expect fair weather.

Summer Birds.

When summer birds take their flight, the summer goes with them.

Swallow.

When swallows in evenings fly high and chirp, fair weather follows; when low, rain follows.

When the swallow's nest is high
The summer is very dry;
When the swallow buildeth low
You can safely reap and sow.

When the swallows fly low, or when the geese fly, expect storm or cold.

Swallows skimming along the ground indicate rain.

Swallows flying low indicate rain.

Circling swallows indicate rain.

Swan.

The swan builds its nest high before high waters, but low when there will not be unusual rains.

Thrush.

When the thrush sings at sunset a fair day will follow.

Turkeys.

Turkeys perched on trees and refusing to descend indicates snow.

Water turkeys flying against the wind indicate falling weather.

Vultures.

Vultures are considered as evil omens, in consequence, probably, of their following armies for the sake of carcasses of the slain, whereon they feed. When they scent carrion at a great distance, they indicate that state of the atmosphere which is favorable to the perception of smells, which often forbodes rain.

Water Fowl.

If water fowl scream more than usual and plunge into water, expect rain.

If water fowl make more noise than usual, also if robins approach nearer houses than usual, expect frost soon.

Wild Ducks.

Wild ducks scattered around the lakes near Lake Superior form

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in large flocks and go south one month earlier in cold or early winters than in mild or pleasant winters.

Wild Geese.

Wild geese flying over in great numbers indicates approaching storm.

Wild geese, wild geese, going to the sea,
Good weather it will be;
Wild geese, wild geese, going to the hill,
The weather it will spill.

Wild geese moving south indicates approaching cold weather moving north, indicates that most of winter is over.

When wild geese fly to the southeast in the fall, in Kansas, expect a blizzard.

Wild geese flying directly south and very high indicates a very cold winter. When flying low and remaining along the river they indicate a warm winter in Idaho. For spring, just the reverse when flying north. (Old settler.)

Wild geese flying past large bodies of water indicates change of weather; going south cold, going north warm.

Woodcock.

An early appearance of woodcock indicates the approach of a severe winter.

Woodpecker.

When the woodpecker leaves, expect a hard winter.

When woodpeckers peck low on the trees, expect warm weather.

The ivory-billed woodpecker commencing at the bottom end of a tree and going to the top, removing all the outer bark, indicates a hard winter with deep snow.

Wrens.

When wrens are seen in winter, expect snow.

PROVERBS RELATING TO CLOUDS.

STORM-PRESAGING CLOUDS.

[From the New York Herald.]

An English meteorologist, the Hon. F. A. R. Russell, who for many years has been a cloud observer, has recently given his conclusions as to the predictive value of the upper clouds. As a celebrated example of the clews given by cirrus clouds to coming weather he mentions that the Rev. Mr. Ley, on a fine day, noticing certain indications of the upper clouds in London, telegraphed from the strand to the meteorological office ordering warnings of a heavy thunder-storm for four o'clock that afternoon, which at the preannounced hour came crashing over the metropolis. Mr. Russell's researches lead him to the conviction that the cirrus cloud is often a more timely monitor of approaching storms than the barometer, and that the "bar or ribbed cirrus," though some-

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what uncommon, is "at least equal in value to the falling barometer as a danger signal." He finds also that "detached patches of cirrus, like little masses of wool or knotted feathers, in a clear sky and of unusual figure, moving at more than the average rate, precede disturbances of great magnitude."

From Aristotle's time the value of cloud signs in storm and rain prognostications has been recognized, but their interpretation has only recently become possible, since the movement of storm centres over wide areas has been systematically traced. The irregular motions of the high clouds, perhaps more than their forms (presenting the appearance of having been divided and torn by uprushing currents), indicate dangerous cyclones. If the equatorial air current in which cyclones are borne along is undisturbed by a cyclonic vortex, the clouds floating in its higher strata would sail on it at a uniform rate. But if we suppose that a storm is moving in the great current, the ascending air in the storm's centre is ceaselessly invading the cloud stratum above. It is this uprushing air which divides the clouds. But as the interchange between the surface and upper air in the cyclone centre tends to retard the swift upper current which transports the cirriform clouds, the motion of these clouds, both over the storm centre and far out in front of it, must often be retarded. The very rapidly moving cirrus clouds which Mr. Russell says precede great disturbances must precede them at great distances from their centres—a fact which enhances their predictive value and shows the importance of observing them systematically. The terrible loss of life and property in the British gale of October 14, 1881, this writer thinks might have been less had the cloud portents been duly watched and heeded, as the cirrus indications of the day previous gave sufficient warning of the coming storm.

Anvil Clouds.

Anvil-shaped clouds are very likely to be followed by a gale of wind.

Appearances.

Soft-looking delicate clouds foretell fine weather with weak, moderate, or light breezes. Hard edged, oily appearing clouds, wind. A dark, gloomy, blue sky indicates wind; a bright, blue sky clear fine weather. Generally the softer the clouds the less wind. Small inky clouds foretell rain.

Assemblage of Clouds.

If an assemblage of small clouds spread out or become thicker and darker, expect rain.

Against the Wind.

If you see a cloud rise against the wind, when that cloud comes up to you the wind will blow the same way that the cloud came, and the same rule holds good of a clear place when all the sky is equally thick except one clear edge. (Shepherd.)

Bull's Eye.

A small, fast-growing, black cloud in violent motion seen in the tropics, is called the Bull's Eye, and precedes the most terrible hurricanes.

Black Clouds.

Black clouds in the north in winter indicate approaching snow.

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Black Scuds.

Small black scuds (clouds), drifting from southwest, is a sign of rain.

Bright—Dark.

If clouds be bright,
'Twill clear to-night;
If clouds be dark,
'Twill rain, do you hark?

Blue Sky.

Enough blue sky in the northwest to make a Scotchman a jacket is a sign of approaching clear weather.

Cirro-Cumuli.

When cirro-cumuli appear in winter expect warm and wet weather. When cirri threads are brushed back from a southerly direction expect rain and wind.

Cirri and Cumulus.

When cirri merge into cerro-stratus, and when cumulus increase towards evening and become lower clouds, expect wet weather.

Cumulus Clouds.

If a fair day, with cumulus clouds, expect rain before night.

Curdly Sky.

A curdly sky will not leave the earth long dry.

A curdly sky will not be twenty-four hours dry.

Cross-Wind Clouds.

If you see clouds going cross wind, there is a storm in the air.

Clouds—Wind.

Clouds flying against the wind indicate unsettled weather.

Dusky Clouds.

Dusky or tarnish-silver colored clouds indicate hail.

Disperse.

When clouds, after a rain, disperse during the night, the weather will not remain clear.

Dark Sky.

If the sky becomes darker without much rain and divides into two layers of clouds, expect sudden gusts of wind.

Dark clouds in the west at sunrise indicate rain on that day.

Equinox.

If it blows in the day it generally hushes toward evening.

The vernal equinoctial gales are stronger than the autumnal.

East Wind.

If rain falls during an east wind, it will continue a full day.

East Clouds.

Clouds in the east, obscuring the sun, indicate fair weather.

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Evening and Morning.

Evening red and morning gray will set the traveller on his way. But evening gray and morning red will bring down rain upon his head.

Fair.

If the sky beyond the clouds is blue,
Be glad, there is a picnic for you.

When there is enough clear sky to patch a Dutchman's breeches, expect fair weather.

Fleecy Clouds.

If, in winter, the clouds appear fleecy, with a very blue sky, expect cold rain or snow.

If there be a fleecy sky, unless driving northwest, expect rain.

When the clouds are formed like fleeces, but dense in the middle and bright toward the edge, with the sky bright, they are signs of a frost, with hail, snow, or rain.

If the woolly fleeces strew the heavenly way,
Be sure no rain disturb the summer day.

Fine Weather.

If clouds at the same height drive up with the wind, and gradually become thinner and descend, expect fine weather.

Gusts.

If there be a cloudy sky and dark clouds driving fast under higher clouds, expect violent gusts of wind.

General Cloudiness.

When a general cloudiness covers the sky and small, black fragments of clouds fly underneath, they indicate rain, and probably it will be lasting.

Hen Scarts.

Hen scarts and filly tails
Make lofty ships wear low sails.

High, Dark Clouds.

If high, dark clouds are seen, in spring, winter, or fall, expect cold weather.

Heavy Sky.

If the sky after fine weather becomes heavy with small clouds, expect rain.

High Clouds.

If clouds form high in air in their white trains like locks of wool, they portend wind and probably rain.

Hues.

Clouds being soft, undefined, and feathery, will be fair. Generally, any deep, unusual hue of clouds indicate rain and wind, while the more quiet and moderate tints indicate fair weather.

Heavy Rains.

If clouds float at different heights and rates, but generally in opposite directions, expect heavy rains.

Horizontal Clouds.

Narrow, horizontal red clouds after sunset in the west indicate rain before thirty-six hours.

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Hills.

When clouds are on the hills
They'll come down by the mills.

Isolated Clouds.

When on clear days isolated clouds drive over the zenith from the rain-wind side (see table I, part II) storm and rain follow within twenty-four hours.

June.

It never clouds up in a June night for a rain.

Lookout Mountain.

When Lookout Mountain has its cap on, it will rain in six hours.

Low Clouds.

Clouds floating low enough to cast shadows on the ground are usually followed by rain.

Mackerel Sky.

Mackerel sky, mackerel sky,
Never long wet, never long dry.

Mackerel Clouds.

The mackerel clouds always indicate storm if the first appear about 15° north of west. (Kansas.)

Mackerel scales and mare's tails
Make lofty ships carry low sails.

Mackerel clouds in sky,
Expect more wet than dry.

Mountain Clouds.

When the clouds hang on the mountain side after a rain and the sun shines on the top of the mountain, the storm is over. When gray clouds are seen for several days on the tops of high mountains, in the fall, they indicate an early winter. (Apache Indians.)

Mackerel Scales.

Mackerel scales,
Furl your sails.

A mackerel sky,
Not twenty-four hours dry.

Northwest Clouds.

If a layer of thin clouds drive up from the northwest, and under other clouds moving more to the south, expect fine weather.

Opening.

If clouds open and close, rain will continue.

Red Sky.

When it is evening, ye say it will be fair weather, for the sky is red; and in the morning it will be foul weather to-day, for the sky is red and lowering. (Matthew xvi, 2, 3.)

When clouds are gathered toward the sun at setting, with a rosy hue, they foretell rain.

If there be red clouds in the west at sunset it will be fair; if the clouds have a tint of purple it will be very fine, or if red bordered with black in the southeast.

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Rounded Clouds.

A cloud with rounded top and flattened base carries rain-fall on its face.

Red clouds at sunrise indicate storm.

Red clouds at sunrise indicate rain on the following day.

Storm.

Behold there ariseth a little cloud out of the sea like a man's hand.

Prepare thy chariot and get thee down that the rain stops thee not. And it came to pass in the mean while, that the heaven was black with clouds and wind and there was great rain. (Kings xviii, 44, 45.)

Stratus.

Stratus or fall cloud is a fog or mist, so called from being strewed along the ground, and from its consisting of particular kinds of clouds, which fall at night-time to the ground. A stratus in the morning, in autumn, often ushers in some of the finest days we enjoy.

Sunday Sunset.

If Sunday sunset is obscured, expect rain before Wednesday.

Salt Lake Valley.

A horizontal streak or band of clouds immediately in front of the mountains on the east side of Salt Lake valley is an indication of rain within one or two days. When black clouds cover the western horizon, rain will follow soon, and extend to the eastward over the valley. (Observer at Salt Lake.)

Storm.

If clouds look like they had been scratched by a hen,
Get ready to reef your top-sails then.

If the clouds be of different heights, the sky being grayish or dirty blue, with hardly any wind stirring, the wind, however, changing from west to south, or sometimes to southeast, without perceptibly increasing in force, expect storm.

South Clouds.

If clouds appear suddenly in the south, expect rain.

Sunrise.

If clouds fly to the west at sunrise, expect fine weather.

If at sunrise many clouds are seen in the west, and disappear, expect fine weather for a short time.

Strips of Clouds.

If long strips of clouds drive at a slow rate high in the air, and gradually become larger, the sky having been previously clear, expect rain.

Streamers.

When streamers point upward, the clouds are falling and rain is at hand. When streamers point downward, the clouds are ascending and drought is at hand.

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Salmon Clouds.

A long strip of clouds called a Salmon, or *Noah's Ark*, stretching east and west, is a sign of stormy weather, but when it extends north and south, it is a sign of dry weather.

North and south the sign of drought,
East and west the sign of blast.

Tints.

Light, delicate, quiet tints or colors, with soft, undefined forms of clouds indicate and accompany fair weather; but unusual or gaudy hues, with hard definitely-outlined clouds, foretell rain, and probably stormy weather.

Thin Light Clouds.

If there be a light-blue sky with thin, light, flying clouds, whilst the wind goes to the south, without much increase in force, or a dirty blue sky when no clouds are to be seen, expect storm.

Tails or Feathers.

If there be long points, tails, or feathers hanging from thunder or rain clouds, five or six or more degrees above the horizon, with little wind in summer, thunder may be expected, but storm will be of short duration.

Two Currents.

Two currents of clouds indicate approaching rain, and in summer thunder.

Thunder.

Against much rain the clouds grow rapidly larger, especially before thunder.

Terraces of Clouds.

When the clouds rise in terraces of white, soon will the country of the corn priests be pierced with the arrows of rain. (Zuñi Indians.)

Variety.

The different kinds of clouds indicate rain.

West Clouds.

When ye see a cloud rise out of the west, straightway ye say there cometh a shower, and so it is. (Luke xii, 54.)

Brassy-colored clouds in the west at sunset indicate wind.

White Clouds.

If on a fair day in winter a white bank of clouds arise in the south, expect snow.

If small white clouds are seen to collect together, their edges appearing rough, expect wind.

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Wind.

If the wind blow between north and east or east, with clouds for some days, and if clouds be then seen driving from the south high up, rain will follow plentifully, sometimes forty-eight hours after; if after the rain the wind goes to the south or southwest, better weather will follow.

Yellow Sky.

A light yellow sky at sunset presages wind.

A pale yellow sky at sunset presages rain.

PROVERBS RELATING TO DEW.

Absence of Dew.

The absence of dew for three days indicates rain.

If nights three dewless there be,
'Twill rain, you're sure to see.

Easter.

The number of dews before Easter will indicate the number of hoar frosts to occur after Easter, and the number of dews to occur in August.

Heavy Dew.

If there is a heavy dew and it soon dries, expect fine weather; if it remains long on the grass, expect rain in twenty-four hours.

Heavy dew indicates fair weather.

Clouds without dew indicate rain.

If there is a heavy dew it indicates fair weather; no dew indicates rain.

Haying Season.

In haying season, when there is no dew, it indicates rain.

Much dew after a fair day indicates another fair day. A calm and fair day followed by absence of dew indicates rain.

Midnight.

With dew before midnight,
The next day will sure be bright.

Plentiful Dew.

If the dew lies on the grass plentifully after a fair day, it indicates that the following day will be fair. If there is no dew and no wind after a fair day, rain will follow.

Southerly Winds.

A heavy dew in the middle latitudes is said to indicate southerly winds.

A heavy dew with a south to east wind, fair—with a northwest wind, rain. (New England.)

Summer Dew.

During summer a heavy dew is sometimes followed by a southerly wind in the afternoon.

Wet Feet.

If your feet you wet with the dew in the morning, you may keep them dry for the rest of the day.

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PROVERBS RELATING TO FISH.

General.

When fish bite readily and swim near the surface, rain may be expected.

Fish become inactive just before thunder showers, silent, and won't bite.

Fish bite the least
With wind in the east.

Fishes in general, both in salt and fresh waters, are observed to sport most and bite more eagerly against rain than at any other time.

Black-fish.

Black-fish in schools indicate an approaching gale.

Blue-fish, pike, etc.

Blue-fish, pike, and other fish jump with head towards the point where a storm is frowning.

The approach of blue-fish to the Middle Atlantic coast is a true indication of a shift of wind to the north within twenty-four or thirty-six hours. The observer furnishing the above states that he has not known this saying to have failed once in the past twenty-five years, and assigns as a reason that in autumn all fish go south, and the blue-fish, it appears, is able to anticipate this change and approaches the coast, where it may strike the feed-fish on their-way south.

Clam-Beds.

Air-bubbles over the clam-beds indicate rain.

Porpoises in harbor indicate coming storm.

Cat-fish.

Fish swim up stream, and cat-fish jump out of water before rain.

If the skin on the belly of the cat-fish is unusually thick, it indicates a cold winter; if not, a mild winter will follow. (Negro.)

Cockles.

Cockles and most shell fish are observed against a tempest to have gravel sticking hard unto their shells, as a providence of nature to stay or poise themselves, and to help to weigh them down, if raised from the bottom by surges.

Cod-fish.

The cod is said to take in ballast before a storm. It is said by Sergeant McGillivry, Signal Corps, U. S. A., that there is one instance of this saying well authenticated, as follows: A number of cod were taken twelve hours before a severe gale, and it was found that each had swallowed a number of small stones, some of the stones weighing three or four ounces.

Crabs and Lobsters.

The appearance of crabs and lobsters indicates that spring has come, and that there will be no more freezing weather. Lake Ontario black bass leave shoal water before a thunder-storm. This has been observed twenty-four hours before storm.

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Cuttles.

Cuttles, with their many legs, swimming on the top of the water and striving to be above the waves, presage a storm.

Cuttle-fish.

Cuttle-fish swimming on the surface of water indicate the approach of storm.

Dolphins.

Dolphins, as well as porpoises, when they come about a ship, and sport and gambol on the surface of the water, betoken a storm; hence they are regarded as unlucky omens by sailors.

Eels.

If eels are very lively it is a sign of rain.

Equinox.

In equinoctial storms fish bite the best before the sun crosses the line.

Fish—Flies.

When fish jump up after flies expect rain.

Frog-fish.

Frog-fish crawling indicate rain.

Lake Trout.

In the northern lakes of the United States white-fish and lake-trout leave reefs for deep water one month earlier in stormy falls than in mild, calm falls, with little winds. (Chippewa Indians.)

Lobsters and Craw-fish.

When lobsters or craw-fish heighten their holes about the surface of the ground, it is a sign of approaching rain.

Moon.

Fish bite the best when the moon is in the tail.

Mullet.

Mullet run south on the approach of cold northerly wind and rain.

North Wind.

Fishermen in anger froth
When the wind is in the north;
For fish bite the best
When the wind is in the west.

Pike.

When pike lie on the bed of a stream quietly, expect rain or wind.

Porpoises.

Porpoises, when they sport about ships and chase one another as if in play, and indeed their being numerous on the surface of the sea at any time, is rather a stormy sign. The same may be said of dolphins and grampus. That the cause of these motions is some electrical change in the air seems probable. Wilsford, in his Secrets of Nature, tells us "Porpoises or sea-hogs when observed to sport and chase one another about ships, expect then some stormy weather."

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Porpoises are said to swim in the direction from which the wind is coming.

Porpoises run into bays and around islands before a storm.

Salmon and Trout.

Salmon and trout plentiful in river (Columbia) show an abundance of rain in the surrounding country by which the river has risen.

Sea-urchins.

Sea-urchins thrusting themselves into the mud, or striving to cover their bodies with sand, foreshow a storm.

Shad.

Shad run south when the weather changes cold.

Shark.

Shark go to sea at the approach of a cold wave.

Skate.

Skate jump in the direction that the next wind will come from.

South Wind.

Wind in the south catch fish in the mouth.

Trout.

Trout bite voraciously before rain.

When trout refuse bait or fly,
There ever is a storm nigh.

Trout and Salmon.

When the trout or salmon-trout jump late in the fall, the Indians of Washington Territory predict an open winter and an open spring.

Trout and Herring.

Trout jump and herring schools more rapidly before rain.

Whales and Porpoises.

When porpoises and whales spout about ships at sea, storm may be expected.

Winds.

The appearance of a great number of fish on the west Gulf coast indicates bad weather and easterly winds.

PROVERBS RELATING TO FOG OR MIST.

August.

The number of August fogs indicate the number of winter mists.

In the Mississippi Valley, when fogs occur in August, expect fever and ague in the following fall.

A fog in August indicates a severe winter and plenty of snow.

Observe on what day in August the first heavy fog occurs, and you may expect a hard frost on the same day in October.

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April Fog.

Fog in April foretells a failure of the wheat crop next year. (Alabama.)

If the first three days of April be foggy, there will be a flood in June. (English.)

Continued Fog.

If there be continued fog, expect frost.

Dew.

When the dew is seen shining on the leaves, the mist rolled down from the mountain last night. (Zuñi Indians.)

Damp Fog.

If there be a damp fog or mist, accompanied by wind, expect rain.

Fog Clouds.

When light fog clouds on evenings are observed to rise from the valleys and hang around the summits of mountains, rain follows.

February Fog.

A fog in February indicates a frost in the following May.

Fog Frost.

He that would have a bad day must go out in the fog after a frost.

Frost.

During frosty weather, the dissolution of mist, and the appearance of small detached cerro-cumulus clouds in the elevated regions of the atmosphere are said to foretell that the termination of frost is at hand.

Fog and Rain.

When the fog goes up the hill the rain comes down the mill.

Fog after Frost.

Fog after hard frosts and fog after mild weather indicate a change in weather.

Falling Fog.

When the fog falls fair weather follows; when it rises rain follows.

Heavy Fog.

Heavy fog in winter, when it hangs below trees, is followed by rain.

Hunting and Fishing.

When the fog goes up the mountains you may go hunting; when it comes down the mountain you may go fishing. In the former case it will be fair; in the latter it will rain.

Light Fog.

Light fog passing under sun from south to north in the morning indicates rain in twenty-four or forty-eight hours.

March, May, and August.

So many mists in March we see,
So many frosts in May shall be;
So many fogs in August we see,
So many snows that year will be.

Mirage.

A mirage is followed by a rain. (New England.)

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Mist—Sea.

When the mist takes to the sea
Then good weather it will be.

(English.)

Misty Mornings.

Three foggy or misty mornings indicate rain. (Oregon.)

Morning Fogs.

When a morning fog turns into clouds of different layers, the clouds increasing in size, expect a rain.

Mountain Mist.

When mountains extend north and south, if fog or mist comes from the west, expect fair weather. If mist comes from the top of mountains, expect rain in summer, snow in winter. (Apache Indians.)

October Fog.

For every fog in October there will be a snow during the winter; for each heavy fog a heavy snow, and for each light fog a light snow.

Rising Fog.

A rising fog indicates fair weather. If the fog settles down, expect stormy weather.

Seaward and Landward.

Fog from seaward, fair weather; fog from landward, rain. (New England.)

Summer Fog.

A summer fog is a good indication of fair weather.

Southerly Wind.

In summer, when fog comes with a southerly wind it indicates warm weather; when it comes with a northerly wind it is a sign of heavy rain.

Weather.

When the mist is on the hill,
Then good weather it doth spoil.

Winter Fog.

A winter's fog will freeze a dog.

PROVERBS RELATING TO FROST.

Bearded—Frost.

Bearded frost is a forerunner of snow.

Birds of Passage.

If birds of passage arrive early from the north, expect frost.

Corn Frost.

With the coming of frost grows the corn old. (Zuñi Indians.)

Dark-moon Frost.

Frost occurring in the dark of the moon kills fruit, buds, and blossoms; but frost in the light of the moon will not.

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Early Frosts.

Early frosts are generally followed by a long and hard winter. Light or white frosts are always followed by wet weather, either the same day or three days after.

Easter Frost.

Past the Easter frost and fruit is safe.

Fences, Trees.

In winter if the fences and trees are covered with white frost, expect a thaw.

Frosty Trees.

If the trees are frosty and the sun takes it away before noon, sign of rain.

First Katydid.

The first frost of the season occurs six week after we hear the first katydid.

Frosts.

Heavy white frost indicates warmer weather.

Black frost indicates dry cold weather.

Bearded frost indicates colder weather and snow.

Frost, Rain.

Hoar frost indicates rain.

Foul Weather.

Frosts end in foul weather.

First Frost.

If the first frost occurs late, the following winter will be mild, but weather variable. If first frost occurs early, it indicates a severe winter.

Gray Sky.

If there be a dark, gray sky, with a south wind, expect frost.

Heavy Frosts.

Heavy frosts are generally followed by fine, clear weather.

Hoar Frost.

If there be an abundance of hoar frost, expect rain.

Ice.

If the ice crack much, expect frost to continue.

June Frosts.

There will be as many frosts in June as there are fogs in February.

Moonlight.

Moonlight nights have the hardest frosts.

Mist.

When the mist is on the hill,
Then good weather it doth spoil;
When the mist takes to the sea,
Then good weather it will be.

(England.)

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Rain, Frosts.

Heavy frosts bring heavy rains; no frosts, no rain. (California.)

Six Months.

Six months from last frost to next frost. (South.)

Spider Webs.

Spider webs floating at autumn sunset,
Bring a night frost, this you may bet.

Three Frosts.

Three frosts in succession are a sign of rain.
Three white frosts and then a storm.

White Frost.

A very heavy white frost in winter is followed by a thaw.

White frost on three successive nights indicates a thaw or rain.

Water Snakes.

When small water snakes leave the sand in low damp lands, frosts may be expected in three days. (Apache Indians.)

Wind, Northwest.

Frost will probably occur when the temperature is 40° and the wind northwest.

A high wind prevents frost.

PROVERBS RELATING TO INSECTS.

Ants.

If ants their walls do frequent build,
Rain will from the clouds be spilled.

When ants are situated in low ground, their migration may be taken as an indication of approaching heavy rains.

Expect stormy weather when ants travel in lines, and fair weather when they scatter.

If in the beginning of July the ants are enlarging and building up their piles, an early and cold winter is at hand.

An open ant-hole indicates clear weather; a closed one an approaching storm.

Ants, Crickets, Gnats, etc.

Ants are very busy; gnats bite; crickets are lively; spiders come out of their nests, and flies gather in houses just before rain.

Butterflies.

The early appearance of butterflies is said to indicate fine weather.

When the white butterfly flies from the southwest, expect rain.

When the butterfly comes, comes also the summer. (Zuñi Indians.)

Bees.

When bees remain in their hives or fly but a short distance, expect rain.

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Bees early at work will not perform a full day's work.

Bees will not swarm before a near storm.

Bees returning hastily and in large numbers are said to indicate approaching rain, although the weather may be clear.

When bees to distance wing their flight
Days are warm and skies are bright;
But when their flight ends near their home
Stormy weather is sure to come.

A bee was never caught in a shower.

If bees remain in the hive or fly but a short distance from it, expect rain.

Black Insects.

When little black insects appear on the snow, expect a thaw.

Cockroaches.

When cockroaches fly it is a sign of approaching rain.

Crickets.

If the cricket sing louder than usual, expect rain.

Chrysalides.

When the chrysalides are found suspended from the under side of rails, limbs, &c., as if to protect them from rain, expect much rain. If they are found on slender branches, fair weather will last some time. (Western Pennsylvania.)

Fleas.

When fleas do very many grow,
Then 'twill surely rain or snow.

When eager bites the thirsty flea,
Clouds and rain you sure shall see.

Flies.

A fly on your nose you slap and it goes,
If it comes back again it will bring a good rain.

When flies congregate in swarms, rain follows soon.

When flies bite greedily, expect rain.

Fall-bugs.

Fall-bugs begin to chirp six weeks before a frost in the fall.

Fire-flies.

Fire flies in great numbers indicate fair weather.

Garden Spiders.

If the garden spiders break and destroy their webs and creep away, expect continued rain.

Glow-worms.

Before rain:

Glow-worms numerous, clear, and bright,
Illuminate the dewy hills at night.

When the glow-worm glows, dry hot weather follows.

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Gossamer.

Gossamer (the fine web of a certain species of spider) is said when abundant in the air to afford a sign of a fine autumn.

Gnats.

Gnats flying in a vortex in the beams of the sun, fair weather will follow; when they frisk about more wildly increasing heat is indicated; when they seek the shade and bite more frequently, the signs are of coming rain.

Gnats in October are a sign of long, fair weather.

Many gnats in spring indicate that the autumn will be warm.

If gnats fly in large numbers, the weather will be fine.

If gnats, flies, &c., bite sharper than usual, expect rain.

When gnats dance in February the husbandmen becomes a beggar.

If gnats fly in compact bodies in the beams of the setting sun, expect fine weather.

If many gnats are seen in the spring, expect a warm autumn.

When gnats dance in March it brings death to sheep. (Dutch.)

Hornets.

Hornets build nests high before warm summers.

When hornets build their nests near the ground, expect a cold and early winter.

House Flies.

House flies coming into the house in great numbers indicate rain.

Harvest Flies.

When harvest flies sing, warm weather will follow.

Insects.

The early appearance of insects indicate an early spring and good crops. (Apache Indians.)

Insects flying in numbers just at evening show change of weather to rain.

Katydids.

Katydids cry three months before frosts. (South.)

Locusts.

When locusts are heard, dry weather will follow, and frost will occur in six weeks.

Spider Webs.

When spiders' webs in air do fly
The spell will soon be very dry.

Spider webs scattered thickly over a field covered with dew glistening in the morning sun indicate rain.

When spiders work at their webs in the morning expect a fair day.

Spiders strengthening their webs indicate rain.

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Long single, separate spider webs on grass is a sign of frost next night. (Irish.)

Spiders in motion indicate rain.

If spiders break off and remove their webs, the weather will be wet.

If spiders make new webs and ants build new hills, the weather will be clear.

If the spider works during rain, it is an indication that the weather will soon be clear.

When the spider cleans its web fair weather is indicated.

If spider webs fly in the autumn with a south wind, expect east winds and fine weather.

Spiders generally change their webs once every twenty-four hours. If they make the change between 6 and 7 p. m., expect a fair night. If they change their web in the morning, a fine day may be expected. If they work during rain, expect fine weather soon, and the more active and busy the spider the finer will be the weather.

Spiders, when they are seen crawling on the walls more than usual indicate that rain will probably ensue. This prognostic seldom fails. This has been observed for many years, particularly in winter, but more or less at all times of the year.

If spiders in spinning their webs make the terminating filaments long, we may in proportion to their lengths expect rain.

When you see the ground covered with spider webs which are wet with dew, and there is no dew on the ground, it is a sign of rain before night, for the spiders are putting up umbrellas; but others say when the spiders put out their sunshades it will be a hot day.

Scorpions.

When scorpions crawl expect dry weather.

Tarantulas.

When tarantulas crawl by day, rain will surely come. (California.)

Wasps.

Wasps building nests in exposed places indicate a dry season.

Wasps in great numbers and busy indicate fair and warm weather.

Wood-lice.

If wood-lice run about in great numbers, expect rain.

Worms, Snails, etc.

Worms come forth more abundantly before rain, as do snails, slugs, and almost all our limaceous reptiles.

Yellow Jackets.

Yellow jackets building nests on top of ground indicates an approaching dry season.

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PROVERBS RELATING TO THE MOON.

April Full Moon.

Full moon in April brings frost.

A Saturday's Moon.

If it comes once in seven years, comes all too soon.

Bean.

Go plant the bean when the moon is light,
And you will find that this is right;
Plant the potatoes when the moon is dark,
And to this line you always hark;
But if you vary from this rule,
You will find you are a fool;
If you always follow this rule to the end
You will always have money to spend.

Beans.

Plant garden beans when the sign is in the scales they will hang full.

Cloudy Morning.

In the old of the moon a cloudy morning bodes a fair afternoon.

Cool Weather.

When the moon runs high expect cool or cold weather.

New moon far in north in summer, cool weather; in winter, cold.

Change.

If the moon changes (full or new) in fair or warm part of the day, it indicates a warm moon, and if it changes in the cool part of the day, it indicates that the weather will be cool during the moon.

If the moon is rainy throughout, it will be clear at the change, and perhaps the rain will return a few days after.

If there be a change of weather at the time of the quarters (under the same conditions as above), the new condition will probably last some time.

Drought—Flood.

The further the moon is to the south the greater the drought; the further west the greater the flood, and the further northwest the greater the cold.

Dry Weather.

When the horns of the moon are sharp it indicates dry weather.

New moon far in the south indicates dry weather for a month.

Dry Moon.

A dry moon is far north and soon seen.

Day Moon.

When the moon is visible in the day-time, the days are relatively cool.

East Wind.

If the moon changes with the wind in the east, the weather during that moon will be foul.

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Fifth Day of Moon.

The fifth day of the new moon indicates the general character of the weather until the full of the moon.

Full Moon.

In Western Kansas it is said that when the moon is near full it never storms.

The full moon eats clouds. (Nautical.)

Fair Moon.

If the moon be fair throughout and rain at the close, the fair weather will probably return on the fourth or fifth day.

Fair Weather.

Phases of the moon occurring in the evening, expect fair weather.

Five Changes.

Five changes of the moon in one month denotes cool weather in summer and cold in winter.

Flood.

Two full moons in a calendar month bring on a flood.

Fine Weather.

If the full moon rises clear, expect fine weather.

Gale Moon.

If the moon is seen between the scud and broken clouds during a gale, it is expected to scuff away the bad weather.

Halo.

The larger the halo about the moon the nearer the rain clouds and the sooner the rain may be expected.

A lunar halo indicates rain, and the number of stars inclosed, the number of days of rain.

The moon with a circle brings water in her beak.

Horns of Moon.

When Luna first her scattered fear recalls,
If with blunt horns she holds the dusky air,
Seamen and swain predict abundant showers.
(Virgil.)

Moon-shield.

If the moon show a silver shield,
Be not afraid to reap your field;
But if she rises halved round,
Soon will tread on deluged ground.

Moon-ring.

Last night the moon had a golden ring,
But to-night no moon I see.

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Moon, Wind-clouds, etc.

When first the moon appears if then she shrouds
Her silver crescent, tipped with sable clouds,
Conclude she bodes a tempest on the main,
And brews for fields impetuous floods of rain.
Or if her face with fiery flushings glow,
Expect the rattling wind aloft to blow;
But four nights old (for that is the best sign),
With sharpened horns, if glorious then she shine,
Next day not only that, but all the moon,
Till her revolving race be wholly run,
Are void of tempests both by land and sea.

Moon Halo.

A large ring around the moon and low clouds indicate rain in twenty-four hours; a small ring and high clouds rain in several days.

Moon, Points of.

If the new moon appears with the points of the crescent turned up, the month will be dry. If the points are turned down, it will be wet.

NOTE.—About one-third of the sailors believe in the direct opposite of the above. The belief is explained as follows: 1st. If the crescent will hold water, the month will be dry; if not, it will be wet. 2d. If the Indian hunter could hang his powder-horn on the crescent, he did so and staid at home, because he knew that the woods would be too dry to still hunt. If he could not hang his powder-horn upon the crescent he put it on his shoulder and went hunting, because he knew that the woods would be wet and that he could stalk game noiselessly.

Mist.

If there be a general mist before sunrise near the full of the moon, the weather will be fine for some days.

New Moon.

New moon on its back indicates wind; standing on its point indicates rain in summer and snow in winter. (Dr. John Menual.)

North Wind.

A new moon with a north wind will hold until the full.

North and South Moon.

If the new moon is far north, it will be cold for two weeks, but if far south, it will be warm.

October Moon.

Full moon in October without frost, no frost till full moon in November.

Old Moon.

In the old of the moon
A cloudy morning means a fair afternoon.

The old moon seen in the new moon's arms is a sign of fair weather.

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If the new moon, first quarter, full moon, last quarter occur between

Summer:	12 and 2 a. m.	Fair.
	2 and 4 a. m.	Cold and showers.
	4 and 6 a. m.	Rain.
	6 and 8 a. m.	Wind and rain.
	8 and 10 a. m.	Changeable.
	10 and 12 m.	Frequent showers.
	12 and 2 p. m.	Very rainy.
	2 and 4 p. m.	Changeable.
	4 and 6 p. m.	Fair.
	6 and 8 p. m.	Fair, if wind northwest.
	8 and 10 p. m.	Rainy, if wind south or southwest.
	10 and 12 p. m.	Fair.
Winter:	12 and 2 a. m.	Frost, unless wind southwest.
	2 and 4 a. m.	Snow and stormy.
	4 and 6 a. m.	Rain.
	6 and 8 a. m.	Stormy.
	8 and 10 a. m.	Cold rain, if wind west.
	10 and 12 m.	Cold and high wind.
	12 and 2 p. m.	Snow and rain.
	2 and 4 p. m.	Fair and mild.
	4 and 6 p. m.	Fair.
	6 and 8 p. m.	Fair and frosty, if wind northeast or north.
	8 and 10 p. m.	Rain or snow, if wind south or southwest.
	10 and 12 p. m.	Fair and frosty.

Points of Moon.

If the points of a new moon are up, then, as a rule, no rain will fall that quarter of the moon; a dull pale moon, dry, with halo, indicates poor crops. In the planting season no grain must be planted when halo is around the moon. (Apache Indians.)

Pale rise.

If the full moon rise pale, expect rain.

Rheumatic diseases.

Therefore the moon, the governor of the floods,
Pale in her anger, washes all the air
That rheumatic diseases do abound.

(Shakespeare.)

Red, Dim, or Pale Moon.

A dim or pale moon indicates rain, a red moon indicates wind.

The moon, her face if red be,
Of water speaks she.

(Zuñi Indians.)

If the full moon rises red, expect wind.

When the moon rises red and appears large, with clouds, expect rain in twelve hours.

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Rain.

When the moon is darkest near the horizon, expect rain.

When phases of the moon occur in the morning, expect rain.

If the moon turns on its back in the third quarter it is a sign of rain.

The moon, if in house be, cloud it will, rain soon will come. (Zuñi Indians.)

Ruddy.

If on her cheeks you see the maiden's blush,
The ruddy moon foreshows the winds will rush.

South Moon.

A south moon indicates bad weather.

Snow.

As many days old as the moon is at the first snow there will be as many snows before crop-planting time.

Snow coming two or three days after new moon will remain on the ground some time, but that falling just after full moon will soon go off.

There will be as many snow-storms during the winter as the moon is days old at the first snow-storm.

Stars in Halo.

Moon in a circle indicates storm, and number of stars in circle the number of days before storm.

Sixth Day of Moon.

If the weather on the sixth day is the same as that of the fourth day of the moon the same weather will continue during the whole moon. Said to be correct nine times out of twelve. (Spanish.)

Storm.

The rising or the setting of the sun or moon, especially the moon, will be followed by a decrease of a storm which is then prevailing.

Saturday Moon.

A Saturday moon, if it comes once in seven years, it comes too soon. A Friday's moon, come when it will, comes too soon.

Saturday Change.

One Saturday change in the moon is enough, as it is always followed by a severe storm.

Stormy, Wet Weather.

If there be a change from continued stormy or wet to clear and dry weather at the time of a new or full moon, and so remains until the second day of the new or full moon, it will probably remain fine till the following quarter; and if it changes not then, or only for a short time, it usually lasts until the following new or full moon; and if it does not change then, or only for a very short time, it will probably remain fine and dry for four or five weeks.

Threatening Clouds.

Threatening clouds, without rain, in old moon indicate drought.

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Thursday.

Thursday before the moon changes rules the moon.

Way to Wane.

The three days of the change of the moon from the way to the wane we get no rain.

Warm Weather.

When the moon runs low, expect warm weather.

Warm and Cold Weather.

If the moon changes in the morning, it indicates warm weather; if in the evening, cold weather.

A change in the moon which occurs between sunrise and sunset will be followed by warm weather; when the change occurs between sunset and sunrise, it will be followed by cold weather.

PROVERBS RELATING TO PLANTS.

Ash Leaves.

When the ash leaves come out before the oak, expect a wet season.

African Marigold.

If this plant does not open its petals by 7 o'clock in the morning, it will rain or thunder that day. It also closes before a storm.

Aspen Leaf.

Trembling of the aspen leaf in calm weather indicates an approaching storm.

Berries.

When the bushes are full of berries, a hard winter is on the way.

When berries are plentiful in the hedge, on the May-bush, and blackthorn, a hard winter may be expected.

Berries in the hedges often forebode a hard winter, and severe weather frequently occurs in seasons when they are particularly plentiful on the May-bush and blackthorn. This rule is not, however, without its exception. But, at all events, peculiarities of the seasons have a wonderful influence on the quantities of berries, particularly those of holly. The peculiarities of the seasons and their influence on plants constitute a very curious subject of research; it comprehends the whole doctrine of special blights, whereby only certain tribes of plants are affected. Epidemics and epizoötics come under the same class, and are referable to specific conditions of the atmosphere.

Beech-nuts.

When beech-nuts are plenty, expect a mild winter.

Beans.

Be it weal or be it woe,
Beans must blow ere May doth go.

Convolvulus.

The convolvulus folds up its petals at the approach of rain.

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Cherries.

As long as the cherries bloom in April it is said that the grape-vine will be in bloom.

Chickweed.

The flowers of the chickweed contract before rain.

The chickweed, at 9 o'clock in the morning, if the weather is clear, straightens its flowers, spreads its leaves, and keeps awake until noon. If, however, there is rain in prospect, the plant droops and its flowers do not open.

Corn-husk.

A double husk on corn indicates a severe winter.

Ears of corn are covered with thicker and stronger husks in cold winters.

If corn is hard to husk, expect a hard winter. (Apache Indians).

Cockle-burs.

When cockle-burs mature brown it indicates frost.

Clover Leaves.

Clover leaves turned up so as to show light under-side indicate approaching rain.

Clovers contract at the close of a storm.

Cottonwood—Quaking Asp.

Cottonwood and quaking asp trees turn up their leaves before rain.

Corn-fodder.

Corn-fodder dry and crisp indicates fair weather; but damp and limp, rain—very sensitive to hygrometric changes.

Dandelions.

The dandelions close their blossoms before a storm; the sensitive plant its leaves. The leaves of the May trees bear up so that the under side may be seen before a storm.

Dandelion and Daisy.

The flowers of the dandelion and daisy close before rain.

Dogwood Blossoms.

When the blooms of the dogwood tree are full, expect a cold winter. When blooms of same are light, expect a warm winter.

Frost will not occur after the dogwood blossoms.

Dead Nettles.

Dead nettles blow early and all the year; the red or purple kind are scarce all winter. They afford a sign of a mild season when they come in winter in abundance.

Early Blossoms.

Early blossoms indicate a bad fruit year.

Flowers.

When the perfume of flowers is unusually perceptible, rain may be expected.

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Fox-fire.

Fox-fire seen at night indicates cold.

Frost—Cockle.

Frost has never been known to catch the cockle or blackberry in bloom.

Fennel.

When fennel blooms, frost follows.

Fall Apples.

If the fall apples are one-sided, with thick, rough skins, a severe winter may be expected.

Grasses.

Grasses of all kinds are loaded with seeds before a severe winter.

Goat's-beard.

When goat's-beard closes its petals at midday, expect rain.

Hay.

Better it is to rise betimes
And make hay while the sun shines,
Than to believe in tales and lies
Which idle monks and friars devise.
(Robins's Almanac.)

Hog-thistle.

If the hog-thistle closes for the night, expect fair weather; if it remains open, expect rain.

Jonquils.

Jonquils, of which there are several sorts, blow in the open ground in March and April. The great jonquil and the odorous jonquil blow about the middle of March, the lesser or proper jonquil somewhat later. When they blow well and early they forebode a fine season.

Leaves.

If in the fall of the leaves in October many of them wither and hang on the boughs, it betokens a frosty winter and much snow.

If the leaves are slow to fall, expect a cold winter.

If the falling leaves remain under the trees and are not blown away by the wind, expect a fruitful year to follow.

When leaves of trees are thick, expect a cold winter.

Late Blossoms.

Late blossoms indicate a good fruit year.

Marigold.

The marigold opens between 6 and 7 in the morning and generally keeps awake until 4 in the afternoon. In such cases the weather will be steady. If, on the other hand, it does not open by 7 o'clock in the morning, you may expect rain that day.

Milk-weed.

Milk-weed closing at night indicates rain.

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Mountain Moss.

When the mountain moss is soft and limpid, expect rain.

When mountain moss is dry and brittle, expect clear weather.

March Flowers.

"March flowers make no summer bowers," because if the spring is very mild, vegetation becomes too far advanced and is liable to injury from frost.

Mushrooms.

When mushrooms spring up during the night, expect rain.

Mushrooms and toad-stools are numerous before rain.

Nuts.

Nuts with a thick covering denote a hard winter.

Onion-skins.

Onion-skins very thin,
Mild winter coming in;
Onion-skins thick and tough,
Coming winter cold and rough.

Pitcher-plant.

The pitcher-plant opens its mouth before rain.

Pimpernel.

When this plant is seen in the morning with its little red flowers widely extended, we may generally expect a fine day; on the contrary, when the petals are closed, rain will soon follow. This plant has been styled the poor man's weather-glass.

Red Sandwort.

When the corona of red sandwort contracts, expect rain.

Sensitive Brier.

The sensitive brier closes up its leaves on the approach of rain.

Sycamore.

Sycamore tree peeling off white in the fall, indicates a cold winter.

Sunflower.

Sunflower raising its head indicates rain.

Scotch Pimpernel.

When the corona, the Scotch pimpernel, contracts, expect rain.

Speedwell.

When the corona of the speedwell, and stitchwort contracts, expect rain.

Sea-weed.

Sea-weed becomes damp and expands before wet weather.

Sea Grape.

In the West Indies and along the coast of Florida there grows a small fruit-bearing tree called the sea grape, which when its fruit is abundant and ripens early it is said by the Seminole Indians and natives of the Bahama Islands to be a sign that there will be a hurricane before the end of the season. The usual time of ripening of this fruit is during September, and the hurricane season extends from the first of August till the end of October.

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Silver Maple.

The silver maple shows the lining of its leaf before a storm.

Sea-weed.

A piece of kelp or sea-weed hung up will become damp previous to rain.

Tulips and dandelions close just before rain.

Trefoil.

If the trefoil contracts its leaves, expect heavy rains.

Tree Limbs.

When tree limbs break off during calm expect rain.

Tree Moss.

North side of trees covered with moss indicates cold weather.

Trees.

Trees grow dark before a storm.

Tree Leaves.

When the leaves of trees curl, with the wind from the south, it indicates rain.

Wild Indigo.

Just before rain or heavy dew the wild indigo closes or folds its leaves.

Wheat.

For wheat a peck of dust in
March is worth a king's ransom;
Or wet and soddy, the land
Must go to oats and corn.

PROVERBS RELATING TO RAIN.

Clearness.

Unusual clearness in the atmosphere, objects being seen very distinctly, indicates rain.

Evening and Morning.

Evening red and morning gray
Are sure signs of a fine day.

Evening gray and morning red,
Put on your hat or you'll wet your head.

Electricity.

Increasing atmospheric electricity oxidizes ammonia in the air and forms nitric acid, which affects milk, thus accounting for souring of milk by thunder.

Hours of Commencing.

If rain commences before daylight, it will hold up before 8 a. m.; if it begins about noon, it will continue through the afternoon; if it commences after 9 p. m., it will rain the next day; if it clears off

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in the night, it will rain the next day; if the wind is from the northwest or southwest, the storm will be short; if from the northeast, it will be a hard one; if from the northwest, a cold one, and from the southwest a warm one.

If rain ceases after 12 m., it will rain next day.

If rain ceases before 12 m., it will be clear next day.

Morning Rain.

If rain commences before day, it will stop before 8 a. m.; if it begins about noon, it will continue through the afternoon; if not till 5 p. m., it will rain through the night; if it clears off in the night, it will rain the next day.

If it rains before seven,
It will clear before eleven.

If rain begins at early morning light,
'Twill end ere day at noon is bright.

North Rain.

With the north rain leaves the harvest.

Northeast Rain.

With the rain of the northeast comes the ice fruit (hail). (Zuñi Indians.)

Rain from the northeast (in Germany region of dry winds) continues three days.

Notice.

Rain long foretold, long last;
Short notice, soon past.

October and November.

Plenty of rain in October and November on the North Pacific coast indicates a mild winter; little rain in these months will be followed by a severe winter.

Scalp-Locks.

When the locks of the Navajoes turn damp in the scalp-house, surely it will rain.

South Thunder.

Rain with south or southwest thunder, squalls occur late each successive day.

South Rain.

Rain from the south prevents the drought, but rain from the west is always best.

South winds bring rain. (California.)

The south rain brings with it the beautiful odors of the land of everlasting summer and brightens the leaves of growing things. (Zuñi Indians.)

Rain which sets in with a south wind on the north Pacific coast will probably last.

September Rain.

Rain in September is good for the farmer, but poison to the vine growers. (German.)

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Seven and Eleven.

If it rains before seven,
It will cease before eleven.

Sunrise.

If it rains before sunrise, expect a fair afternoon.

Sunshiny Rain.

If it rains when the sun shines, it will rain the next day.

Swallows and Crickets.

Rain is indicated when—

Low o'er the grass the swallows wing,
And crickets, too, how sharp they sing.

September.

Heavy September rains bring drought.

Squalls.

When rain-squalls break to the westward, it is a sign of foul weather.

When they break to leeward, it is a sign of fair weather. (North-east coast.)

Tide.

Rain is likely to commence on the turn of the tide.

In threatening, it is more apt to rain at the turn of the tide, especially at high water.

Toad stools.

If toad-stools spring up in the night in dry weather, they indicate rain.

West Rain.

When rain comes from the west it will not continue long.

The west rain comes from the world of waters to moisten the home of the She Wi. (Zuñi Indians.)

Wind and Rain.

Marry the rain to the wind and you have a calm.

Wind.

With the rain before the wind your topsail halyards you must mind.

PROVERBS RELATING TO RAINBOWS.

Clear.

The rainbow has but a bad character: she ever commands the rain to cease.

Color.

If the green be large and bright in the rainbow, it is a sign of rain. If red be the strongest color, there will be rain and wind together. After a long drought the rainbow is a sign of rain. After much wet weather it indicates fair weather. If it breaks up all at

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once, there will follow severe and settled weather. If the bow be in the morning, rain will follow; if at noon, slight and heavy rain; if at night, fair weather. The appearance of two or three rainbows indicates fair weather for the present, but settled and heavy rains in a few days.

Evening Rainbow.

If there is a rainbow at eve,
It will rain and leave.

East and West Rainbow.

Rainbow in the east indicates that the following day will be clear. A rainbow in the west is usually followed by more rain the same day.

Rainbow in the Sierras (*i. e.*, in the east) in evening indicates no more rain. (California.)

Fair Weather.

The boding shepherd heaves a sigh,
For see, a rainbow spans the sky.

High Rainbow.

When rainbow does not touch water, clear weather will follow.

Indications by Colors.

The predominance of dark red in the iris shows tempestuous weather; green, rain; and if blue, that the air is clearing.

Low Rainbow.

A rainbow that comes near a camp-fire, or low down on the mountain side, is a bad sign for crops. If seen at a great distance, it indicates fair weather.

Morning and Evening Rainbow.

Rainbow in morning, shepherds take warning;
Rainbow at night, shepherds' delight.

A morning rainbow indicates rain; an evening rainbow, fair weather.

A rainbow in the morn, put your hook in the corn;
A rainbow at eve, put your head in the sheave.

Night and Morning Rainbow.

Rainbow at night, sailors' delight;
Rainbow in morning, sailors' warning.

Spring Rainbow.

A rainbow in spring indicates fair weather for next twenty-four to forty-two hours.

Sudden Disappearance.

If a rainbow disappears suddenly, it indicates fair weather.

West and East Shower.

Rainbow in morning shows that shower is west of us, and that we will probably get it. Rainbow in the evening shows that shower is east of us and is passing off.

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PROVERBS RELATING TO REPTILES.

Frogs.

Frogs singing in the evening indicate fair weather for next day.

Frogs croak more noisily, and come abroad in the evening in large numbers, before rain.

When frogs croak three times, it indicates that winter has broken.

As long as frogs are heard before Saint Marc's day, that long will they keep quiet afterward.

Croaking frogs in spring will be three times frozen in.

When frogs warble, they herald rain. (Zuñi Indians.)

Frogs must be frozen up three times in spring after they begin to croak.

The louder the frogs, the more's the rain.

The color of a frog changing from yellow to reddish indicates rain.

Tree-frogs piping during rain indicates continued rain.

Tree-frogs crawl up to the branches of trees before a change of weather.

Yellow Frogs.

Abundance of yellow frogs are accounted a good sign in a hay-field, probably as indicating fine weather.

Glow-worms.

Glow-worms numerous and bright, indicate rain.

Worms.

If, after some days of dry weather, fresh earth is seen which has been thrown up by worms, expect dry weather.

When worms creep out of the ground in great numbers, expect wet weather.

Snails.

Snails moving on bushes or grass, are signs of rain.

When black snails cross your path,
Black clouds much moisture hath.

Leech.

A leech placed in a jar of water will remain at the bottom until rain is approaching, when it will rise to the surface, and if thunder is to follow will frequently crawl out of the water.

Leeches kept in glass jars move about more frequently just before rain.

Lizards.

When lizards chirrup, it is a sure indication of rain.

Snakes.

Hanging a dead snake on a tree will bring rain in a few hours. (Negro.)

NOTE.—Snakes are out before rain, and are, therefore, more easily killed.

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In Oregon the approach of snakes indicates that a spell of fine weather will follow.

When snakes are hunting food rain may be expected; after a rain they cannot be found.

Hang up a snake skin and it will bring rain.

Snakes and snake-trails may be seen near houses, roads, &c., before rain.

Snakes expose themselves on the approach of rain.

PROVERBS RELATING TO STARS OR METEORS.

Comets.

Comets bring cold weather.

After an unusual fall of meteors, dry weather is expected. All comets evidence the approach of some calamity, such as drought, famine, war, floods, &c. (Apache Indians.)

Comets are said to improve the grape crop, and wine produced in years when comets appear is called comet wine. (French.)

Falling Stars.

If there be many falling stars during a clear evening in summer, expect thunder.

If there are no falling stars on a bright summer night, expect fine weather.

Fair Weather.

When the stars set still the times are to be pleasant. (Zuñi Indians.)

Flickering.

When the stars flicker in a dark background, rain or snow follows soon.

Huddling Stars.

When the stars begin to huddle,
The earth will soon become a puddle.

Many Stars.

When the sky is very full of stars, expect rain.

Many stars in winter indicate frost.

In summer, when many stars twinkle, clear weather is indicated.

Milky Way.

The edge of the Milky Way, which is the brightest, indicates the direction from which the approaching storm will come.

North Star.

When the stars above 45° in altitude or the North Star flickers strangely, or appears closer than usual, expect rain.

Numerous Stars.

When stars appear to be numerous, very large, and dull, and do not twinkle, expect rain.

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Snow.

Many meteors presage much snow next winter.

Shooting Stars.

If meteors shoot toward the north, expect a north wind next day.

Many shooting stars on summer nights indicate hot weather.

Tempest.

When a star tows the moon and another chases her astern, tempestuous weather will follow. The phenomenon is probably styled a big star chasing the moon. (Nautical.)

Twinkling.

Excessive twinkling of stars indicates very heavy dews, rain, and snow.

When the stars twinkle very brightly, expect stormy weather in the near future.

The Maltese say, "The stars twinkle; we cry 'wind.'"

Wind and Rain.

If the stars appear large and clear, expect rain or wind.

Thaw.

If shooting stars fall in the south in winter, there will be a thaw.

PROVERBS RELATING TO SNOW.

Animation.

Snow is generally preceded by a general animation of man and beast which continues until after the snow-fall ends.

Corn.

Corn is as comfortable under snow as an old man is under his fur cloak. (Russian.)

Christmas.

If it snows during Christmas night, the crops will do well.

So far as the sun shines on Christmas day,
So far will the snow blow in May. (German.)

Dry or Wet Snow.

When the snow falls dry it means to lie,
But flakes light and soft bring rain oft.

Ditch Snow.

When now in the ditch the snow doth lie,
'Tis waiting for more by and by.

Dry or Wet Snow.

If the snow that falls during the winter is dry and is blown about by the wind, a dry summer will follow; very damp snow indicates rain in the spring. (Apache Indians.)

First Snow.

There will be as many snow storms during the season as there are days remaining in the month after the time of the first snow.

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When the first snow remains on the ground some time, in places not exposed to the sun, expect a hard winter.

Fast Snow.

The number of days the last snow remains on the ground indicates the number of snow storms which will occur during the following winter.

Heavy Snows.

Heavy snows in winter favor the crops of the following summer.

January Snow.

If there is no snow before January, there will be the more snow in March and April.

Leaves.

When dry leaves rattle on the trees, expect snow.

Light and Heavy Snow.

A heavy fall of snow indicates a good year for crops, and a light fall the reverse. (Dr. John Menaul.)

Mountain Snow.

If much snow be spread on the mountains in winter, the season of planting will be made blue with verdure. (Indian.)

March Snow.

In March much snow
To plants and trees much woe. (German.)

Mud.

When snow falls in the mud it remains all winter.

November.

A heavy November snow will last until April. (New England.)

If the snow remains on the trees in November, they will bring out but few buds in the spring. (German.)

Popping Wood.

Burning wood in winter pops more before snow.

Snow fertile.

Snow is the poor man's fertilizer, and good crops will follow a winter of heavy snowfall.

Snow trees.

If the first snow sticks to the trees, it foretells a bountiful harvest.

Snowball.

Cut a snowball in halves: if it is wet inside, the snow will pass off with rain; if it is dry inside, the snow will be melted by the sun.

Snow-flakes.

If the snow-flakes increase in size, a thaw will follow.

Snow-moon.

If a snow-storm begins when the moon is young, the rising of the moon will clear away the snow.

Snow-health.

The more snow the more healthy the season. (John Ayers, Santa Fé.)

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Snow-year.

A snow year, a rich year.

As many days as the snow remains on the trees, just so many days will it remain on the ground.

It takes three cloudy days to bring a heavy snow. (New England.)

White Christmas.

A white Christmas, a lean graveyard.

Sleet.

Much sleet in winter will be followed by a good fruit year.

PROVERBS RELATING TO THE SUN.

Aurora.

Aurora borealis denotes cold.

If Aurora with half-open eyes
And a pale sickly cheek salutes the skies,
How shall the vines with tender leaves defend
Her teeming clusters when the storms descend.
(Virgil.)

Candlemas Day.

So far as the sun shines in on Candlemas day (2d of February)
So far the snow will blow in before the first of May.

Cloudy Sunset.

The sun sets weeping in the lowly west,
Witnessing storms to come woe and unrest.
(Shakespeare.)

When the sun sets unhappily (with a hazy veiled face) then will the morning be angry with wind, storm, and sand. (Zuñi Indians.)

Color.

Since the colors and duration of twilight, especially at evening, depend upon the amount of condensed vapor which the atmosphere contains, these appearances should afford some indications of the weather which may be expected to succeed. The following are some of the rules which are relied upon by seamen: When after sunset the western sky is of a whitish-yellow, and this tint extends a great height, it is probable that it will rain during the night or next day. Gaudy or unusual hues with hard, definitely outlined clouds, foretell rain and probably wind. If the sun before setting appears diffuse and of a brilliant white, it foretells storm. If it sets in a sky slightly purple, the atmosphere near the zenith being of a bright blue, we may rely upon fine weather.

Days.

As the days begin to shorten
The heat begins to scorch them.

Dark Clouds.

If the sun sets in dark, heavy clouds, expect rain next day.

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If at sunrise there are many dark clouds seen in the west and remain there, rain will fall on that day.

Double Setting.

Sun setting double indicates much rain. Red sun indicates fair weather. Orange sun usually foul weather. Mock suns in winter are usually followed by intense cold.

Dull Color.

When the sun appears a pale or dull color, expect rain.

Drawing Water.

Rays of the sun appearing in a cloud forebode rain. This phenomenon is, in fact, caused by the image of the sun being reflected in an intervening cloud, the reflected image radiating in the cloud. It is noticed by Aristotle.

When the sun draws water, rain follows soon.

Sun drawing water indicates rain.
If the sun draws water in the morning, it will rain before night.

Easter.

If sun shines on Easter, it will shine on Whit Sunday.

Fiery Red.

In fiery red the sun doth rise,
Then wades through clouds to mount the skies.

Friday.

If the sun sets clear Friday evening, it will rain before Monday night.

Golden Set.

The weary sun hath made a golden set,
And by the bright track of his fiery car
Gives token of a goodly day to-morrow.
(Richard III.)

Halo.

When the sun is in his house (in a halo or circle) it will rain soon.
(Zuñi Indians.)

A solar halo indicates bad weather.

A halo around the sun indicates the approach of a storm, within three days, from the side which is the more brilliant.

If there be a ring or halo around the sun in bad weather, expect fine weather soon.

A bright circle around the sun denotes a storm, and cooler weather.

Haze.

Haze and western sky purple indicate fair weather.

Haziness.

A blur or haziness about the sun indicates a storm.

Hot Sun.

If the sun burn more than usual, or there be a halo around the sun in fine weather, "wet."

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Looming Twilight.

Twilight looming indicates rain.

Low and High Dawn.

A low dawn indicates foul weather. A high dawn indicates wind.

Murky Clouds.

When the sun rises with dim, murky clouds, with black beams, clouds in the west, or appears red or green, expect rain.

Pale Twilight.

Pale, yellow twilight, extending high up, indicates threatening weather.

Pale Set.

If the sun sets pale, it will rain to-morrow.

Pale Sunrise.

If the sun rises pale, a pale red, or even dark blue, there will be rain during the day.

Pale Sunset.

A pale sunset, a golden sunset, or a green sunset, indicates rain.

Red Clouds.

If the clouds at sunrise be red, there will be rain the following day.

Red.

A red evening indicates fine weather; but if the red extends far upwards, especially in the morning, it indicates wind or rain.

Red Morn.

"A red morn: that ever yet betokened
Wreck to the seamen, tempest to the field,
Sorrow to shepherds, woe unto the birds,
Gust and foul flaws to herdsmen and to herds."
(Shakespeare: Venus and Adonis.)

Red Sky.

A very red sky in the east at sunset indicates stormy winds.

Red skies in the evening precede fine morrows.

In winter if the sun rises with a red sky, expect rain that day; in summer, expect showers and wind.

If the sun set with very red sky in the east, expect wind; in the southeast, expect rain.

Sun Spots.

Wet seasons occur in years when sun-spots are frequent.

Red Sun.

A red sun has water in his eye.

Scorching Sun.

When the sun in the morning (to 9 a. m.) is breaking through the clouds and scorching, a thunder-storm follows in the afternoon.

When the sun is scorching (*i. e.*, reflected from roofs and water surfaces), rain follows soon.

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Sea-green Sky.

When the sky during rain is tinged with sea-green, the rain will increase; if with deep blue, the rain will be showery.

Spotted Clouds.

If the sun rises covered with a dark spotted cloud, expect rain on that day.

Spring.

If the sun appears dead, not bright and clear in the early spring, expect poor crops and very little rain. This sign usually comes in April. Dry winds may also be expected. (Apache Indians.)

Sun-dogs.

Sun-dogs indicate cold weather in winter or storm in summer.

A sun-dog at night is the sailor's delight;
A sun-dog in the morning is the sailor's warning.

Sunrise.

If de sun git up berry early and go to bed before he git up, it's a sign it rains before soon. (Negro.)

If the sun rises clear, then shadowed by a cloud, and comes out again clear, it will rain before night.

Sunshining Shower.

Sunshining shower won't last half an hour;
Sunshine and shower rain again to-morrow.

Ten and Two.

Between the hours of ten and two,
Will show you what the day will do.

Yellow Streaks.

Red or yellow streaks from west to east indicate rain in forty-eight hours.

Yellow Sunset.

A bright yellow sunset indicates wind; a pale yellow, wet; a neutral gray is a favorable sign in the morning, and unfavorable in the evening.

The sun reveals the secrets of the sky,
And who dares give the source of light the lie.
(Virgil.)

PROVERBS RELATING TO THUNDER AND LIGHTNING.

Birds.

If the birds be silent, expect thunder.

Cattle.

If cattle run around and collect together in the meadows, expect thunder.

Christmas Thunder.

Thunder during Christmas week indicates that there will be much snow during the winter. (Kansas.)

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Death—Plunder.

Winter thunder is to old folks death, and to young folks plunder.

Distant Thunder.

The distant thunder speaks of coming rain.

Early Thunder.

Early thunder, early spring.

Early and Late Thunder.

Thunder and lightning early in winter or late in fall indicates warm weather.

East Thunder.

If the first thunder is in the east, aha! the bear has stretched his right arm and comes forth, and the winter is over. (Zuñi Indians.)

East Wind.

If an east wind blows against a dark, heavy sky from the northwest, the wind decreasing in force as the clouds approach, expect thunder and lightning.

Evening Thunder.

If there be thunder in the evening, there will be much rain and showery weather.

Thunder in the evening indicates much rain.

Fall Thunder.

Thunder in the fall indicates a mild, open winter.

February Thunder.

Thunder and lightning in February or March, poor sugar (maple) year.

First Thunder.

The thunder-storms of the season will come from the direction of the first thunder-storm.

First thunder in winter or spring indicates rain and very cold weather. (Dr. John Menual.)

With the first thunder the gods of rain open their petals. (Zuñi.)

Forked Lightning.

Forked lightning at night,
The next day clear and bright.

Frogs and Snakes.

The first thunder of the year awakes the frogs and snakes from their winter sleep.

Heat.

Lightning brings heat.

July Thunder.

Much thunder in July injures wheat and barley.

Lightning without Thunder.

If there be lightning without thunder after a clear day, there will be a continuance of fair weather.

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March Thunder.

Thunder in March betokens a fruitful year. (German.)

May Thunder.

If there is much thunder in May, the months of September and August will be without it.

Morning Thunder.

Morning thunder is followed by a rain the same day.

When it thunders in the morning, it will rain before night.

North Lightning.

Lightning in the North will be followed by rain in twenty-four hours.

Lightning in the North in summer is a sign of heat.

North—south.

Lightning in the North indicates rain in twenty-four hours. Lightning in the South low on the horizon indicates dry weather. (Kansas.)

North Star.

Lightning under North Star will bring rain in three days.

NW. Thunder.

Thunder-storm from NW. is followed by fine, bracing weather; but thunder and lightning from NE. indicates sultry, unsettled weather. (Observer at Santa Fé).

North Thunder.

Thunder in the north indicates cold weather and rain from the west.

If the first thunder is in the north, aha! the bear has stretched his left leg in his winter bed.

North Wind.

With a north wind it seldom thunders.

November Thunder.

Thunder and lightning on the northern lakes in November is an indication that the lakes will remain open until the middle of December or until Christmas. (Said to be reliable).

Red and Pale Lightning.

When the flashes of lightning appear very pale, it argues the air to be full of waterish meteors; and if red and fiery, inclining to winds and tempests.

September Thunder.

Thunder-storms in September mean plenty of snow in February and March, and a large crop of grape wine. (German).

If it thunders much at the beginning of September, much grain will be raised the following year.

Spring Lightning.

Lightning in spring indicates a good fruit year.

Spring Thunder.

If there be showery weather, with sunshine and increase of heat

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in the spring, a thunder-storm may be expected every day, or at least every other day.

First thunder in the spring—if in the south it indicates a wet season, if in the north it indicates a dry season.

South or Southeast Thunder.

Thunder from the south or southeast indicates foul weather, from the north or northwest fair weather.

Sheet Lightning.

If there be sheet lightning with a clear sky on spring, summer, and autumn evenings, expect heavy rains.

South Thunder.

If the first thunder is in the south, aha! the bear has stretched his right leg in his winter bed. (Zuñi Indians.)

Summer Lightning.

Lightning in summer indicates good healthy weather.

West Thunder.

If the first thunder is in the west, aha! the bear has stretched his left arm in his winter bed. (Zuñi Indians.)

Winter Thunder.

A winter's thunder
Is a summer's wonder.

When thunder is heard in winter, it indicates cold weather. Thunder in the north indicates dry weather.
Thunder in winter means famine in summer.

Winter's thunder
Bodes summer hunger.

PROVERBS RELATING TO TREES.

Ash and Oak.

Ash before oak,
There'll be a smoke;
Oak before ash,
There'll be a smash.
(Meaning heat and wind.)

Dead Branches.

Dead branches falling in calm weather indicate rain.

Leaves.

Early falling leaves indicate an early fall.

Logs.

An easy-splitting log indicates rain.

Leaves.

Leaves turned up so as to show the underside indicate rain.

Maple.

When the leaves of the sugar-maple tree are turned upside down, expect rain.

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PROVERBS RELATING TO WIND.

Aches and Pains.

As old sinners have all points
O' the compass in their joints,
Can by their pangs and aches find
All turns and changes of the wind.

Blast.

The sharper the blast,
The sooner 'tis past.

Barometer.

When the glass is low,
Look out for a blow;
When it rises high,
Let all your kites fly.

Backing Wind.

If the wind backs against the sun,
Trust it not, for back it will run.

Brisk Wind.

A brisk wind generally precedes rain.

Changing Wind.

It is a sign of continued fine weather when the wind changes during the day so as to follow the sun.

Winds changing from foul to fair during the night are not permanent.

Candlemas Day.

When the wind is on Candlemas day
There it will stick till the end of May.

Clear Sunset.

When the sun sets in a clear—
An easterly wind you need not fear.

Chenook Wind.

A Chenook wind is a warm wind which comes from the mouth of the Columbia river or Chenook Point. A Walla Walla wind is a cold wind which blows down the Columbia river. (Indian, North Pacific.)

Drought and Blast.

North and south the sign o' drouth,
East and west the sign o' blast.

East Wind.

In summer, if the wind changes to the east, expect cooler weather.

When the east wind toucheth it, it shall wither. (Ezekiel, chap. xvii, 10.)

And, behold, seven thin ears and blasted with the east wind came up. (Genesis, xli, 6.)

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The east wind brought the locust. (Exodus, x, 13.)

God prepared a vehement east wind. (Jonah, chap. iv, 8.)

The east wind hath broken thee in the midst of the seas. (Eziekel, chap. xvii, 26.)

An east wind brings no good to man or beast.

Easter Sunday.

As the wind blows on Easter Sunday from 8 a. m. to 12 m., the wind will be from that direction for the next forty days. (Chippewa Indians.)

Equinox.

The wind being north-northeast and east three days before the sun crosses the line, then southeast by way of east, then calm on the 23d, will bring enough and stormy winds from east and west all the winter.

East and West Wind.

When the wind is in the east,
The fish bite the least.
When the wind is in the west,
The fish bite the best.

Fixed East Wind.

If the wind becomes fixed in the east for the space of forty-eight hours, expect steady and continuous rain, with driving winds in the southwest during summer.

Gale.

A gale moderating at sunset will increase before midnight, but if it moderates after midnight, the weather will improve.

Fog and Mist.

Fog and mist raise higher seas than wind.

Heat.

If the wind be hushed with sudden heat, expect heavy rain.

Indiana Winds.

In Southern Indiana a southwest wind is said to bring rain in thirty-six hours.

Indian Proverbs Relating to Winds.

Wind from the north, cold and snow.

Wind from the western river of the northland, snow (northwest wind).

Wind from the world of waters, clouds (west wind).

Wind from the southern river of the world of waters, rain (southwest wind).

Wind from the land of the beautiful red, lovely odors and rain (south wind).

Wind from the wooded cañons, rain and moist clouds (southeast wind).

Wind from the land of day, it is the breath of health and brings the days of long life.

Winds from the lands of cold, the rain before which flees the harvest (northeast wind).

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Winds from the lands of cold, the fruit of ice (northeast wind).

Wind from the right hand of the west is the breath of the god of sand clouds. (Zuñi Indians.)

Increasing Winds.

If the wind increases during a rain, fair weather may be expected soon.

Milk Cream.

Milk cream makes most freely with a north wind.

Northerly and Southerly Winds.

If the wind is from the northwest or southwest, the storm will be short; if from the northeast, it will be a hard one; if from the northwest, a cold one; and from the southwest a warm one. After it has been raining some time, a blue sky in the southeast indicates that there will be fair weather soon.

North Wind.

If there be within four, five, or six days two or three changes of wind from the north through without much rain and wind, and thence again through the west to the north with rain or wind, expect continued showery weather.

The north wind driveth away rain. (Proverbs, xxv, 23.)

Northeast Rain.

As a rule northeast rains indicate cold and damp soil, poor prospects for small seeds, melons, &c. (Apache Indians.)

North, East, South, and West Winds.

When the wind is in the north,
The skilful fisher goes not forth;
When the wind is in the east,
'Tis good for neither man nor beast;
When the wind is in the south,
It blows the flies in the fish's mouth;
But when the wind is in the west,
There it is the very best.

(Isaak Walton.)

Northeast Wind.

If the wind changes to the northeast or north, expect cold weather.

If there be northeast or east winds in the spring, after a strong increase of heat, and small clouds appear in the different parts of the sky, or if the wind changes from east to south at the appearance of clouds preceded by heat, expect heavy rains.

Northwest and East Winds.

When the wind is in the northwest
The weather is at its best;
But if the rain comes out of the east
'Twill rain twenty-four hours at least.

Northwest and Northeast Winds.

Northwest wind brings a short storm;
A northeast wind brings a long storm.

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Northwest Winds.

Northwest wind brings only rain showers.

If there be a change of wind from the northwest or west to the southwest or south, or else from the northeast or east to the southeast or south, expect wet weather.

If the northwest or north winds blow with rain or snow during three or four days in the winter and then the wind passes to the south through the west, expect continued rain.

In summer if the wind changes to the northwest, expect cooler weather.

If a northwest wind shifts to northeast, remaining there two or three days without rain, and then shifts to the south, and then back to the northeast, with very little rain, fair weather may be expected during the following month. (Observer at Cape Mendocino.)

New Year's Eve.

If New Year's Eve night wind blow from south,
It betokeneth warmth and drouth;
If west, much milk, and fish in sea;
If north, much cold and storm there'll be;
If east, the trees will bear much fruit;
If north, flee it man and beast.

November—December.

As the wind is in the month of November, so will it be in the month of December.

No Wind.

No weather is ill
If the wind is still.

Night Winds.

Winds at night are always bright,
But winds in the morning, sailors take warning.

Pigs.

When pigs carry straws to their sty, a wind-storm may be expected.

Rising Wind.

First rise after very low
Indicates a strong blow.

Fast rise after a low
Precedes a stormy blow.

Rain-Wind.

Wind before a rain, set your topsails fair again.
Rain before the wind, keep your topsails snug as

South Wind.

When ye see the south wind blow, ye say there will be heat; and it cometh to pass. (Saint Luke, xii, 55.)

A wind in the south
Is in the rain's mouth.

The rain comes scuth
When the wind is in the south.

(Scotch.)

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Brisk winds from the south for several days in Texas are generally followed by a "norther."

If there be dry weather with a light south wind for five or six days, it having previously blown strongly from the same direction, expect fine weather. (Texas.)

The southern wind doth blow a trumpet to his purpose, and by his hollow whistling in the leaves foretells a tempest and a blustering day. (Shakespeare.)

Southwest Wind.

In fall and winter if the wind holds a day or more in the southwest, a severe storm is coming; in summer, same of northeast wind.

A southwest blow on ye
And blister ye all over.

(Shakespeare.)

Three southwesters, then one heavy rain.

The third day of southwest wind will be a gale, and wind will veer to northwest between 1 and 2 a. m. (in winter) with increasing force. (From fisherman on North Carolina coast.)

If the wind shifts around to the south and southwest, expect warm weather.

Southeast Wind.

If the wind blows from the southeast during September 20th and 21st, the weather from the middle of February to the middle of March will be warm.

Shifting During Drought.

In Texas and the southwest when the wind shifts during a drought, expect rain.

September Winds.

If the wind blows from the south on the 21st of September, it indicates a warm autumn.

Sun.

Winds that change against the sun
Are always sure to backward run.

Storm.

When a heavy cloud comes up in the southwest and seems to settle back again, look out for a storm.

Wind-storms usually subside about sunset, but if they do not the storm will probably continue during the following day.

Always a calm before a storm.

Squalls.

Squalls making up on the flood-tide will culminate about high-water; those making on ebb-tide will culminate about low-water. (South Atlantic coast.)

West Wind.

Wind in the west, weather at the best.
Wind in the east, neither good for man or beast.

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West Wind.

A west wind north about
Never hangs lang out.

(Scotch.)

West, East, South, and North Wind.

The west wind always brings wet weather,
The east wind cold and wet together,
The south wind surely brings us rain,
The north wind blows it back again.

(English.)

Veering Wind.

A veering wind indicates fair weather, a backing wind foul weather.

Unsteady Winds.

The whispering grove betrays the gathering elemental strife.
Unsteadiness of the wind is an indication of changeable weather.

Whirlwinds.

When numerous whirlwinds are observed, the rotation being opposite to that of the sun, look for wind and rain.

Weather.

Every wind has its weather.

White Clouds.

Heavy, white, rolling clouds in front of a storm denote high wind.

PROVERBS RELATING TO YEARS AND SEASONS.

Almond Blooms.

Mark well the flowering almonds in the wood;
If odorous blooms the bearing branches load,
The glebe will answer to the sylvan reign,
Great heats will follow and large crops of grain;
But if a wood of leaves o'ershades the tree
Such and so barren will the harvest be.

(Virgil.)

Autumn.

A pleasant autumn and a mild winter will cause the leaves to fall next September.

A moist autumn, with a mild winter, is followed by a cold and dry spring, retarding vegetation. If the summer be rainy the following winter will be severe.

Cherry Year.

A cherry year
A merry year.

Coat.

Who doffs his coat on winter's day
Will gladly put it on in May.

(Scotch.)

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Cold Spring.

A cold spring kills the roses. (Arabia.)

Equinox.

As the wind and weather is at the time of the equinox, so will be the wind and weather generally during the following three months.

As clear off the line, or equinoctial storm, so will all storms clear for six months.

Fair.

One fair day in the winter does not make the birds merry.

Fall.

A wet fall indicates a cold and early winter.

Famine.

After a famine in the stall
Comes a famine in the hall.

Frosty Nights.

Frosty nights and hot summer days
Set the cornfields all in a blaze.

Harvest.

The harvest depends more on the year than on the field. (Denmark.)

Haw Year.

A haw year
A braw year.
(Ireland.)

A haw year
A snaw year.
(Scotland.)

Indian Summer.

If we don't get our Indian summer in October or November we will get it in winter.

Late Spring.

A late spring is a great blessing.

A late spring never deceives.

Long Harvest.

A long harvest, a little corn.

Leap Year.

In leap year the weather always changes on Friday.

Late Spring.

A late spring is bad for cattle, and an early spring for corn.

Nut—Corn.

A good nut year, a good corn year.

Oak Tree—Barley.

When the oak puts on his goslin grey
'Tis time to sow barley, night or day.

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Old Year.

If the old year goes out like a lion the new year will come in like a lamb.

Pear—Dear.

A pear year
A dear year.

Plum.

In the year when plums flourish all else fails. (Devon.)

A plum year
A dumb year.

(Kent.)

Rainy Winter.

After a rainy winter follows a fruitful spring.

Seasons.

Extreme seasons occur from the 6th to the 10th year of each decade (especially in alternate decades).

A severe autumn denotes a windy summer;
A windy winter a rainy spring;
A rainy spring a severe summer;
A severe summer a windy autumn;
So that the air in balance is
Seldom debtor unto itself.

(Lord Bacon.)

Short Harvest.

Short harvests make short earnings. (Yorkshire.)

Sloe Tree.

When the sloe tree is as white as a sheet
Sow your barley, whether it be dry or wet.

Snow.

A snow year a rich year.

Sow Beans.

Sow beans in the mud,
And they'll grow like a wood.

Sow.

Sow thin, shear thin.

Spring Rain.

In spring a tub of rain makes a spoonful of mud;
In autumn a spoonful of rain makes a tub of mud.

Spring is both father and mother to us, and he who does not sow will not reap. (Gallicia.)

If the spring is cold and wet, the autumn will be hot and dry.

Fog in January makes a wet spring.

If it storms on February 2d, then the spring is not very far; but when bright and clear, then the spring will be late.

If it snows on February 2d, only as much as to be seen on a black ox, then summer will come soon.

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When in February it is mild,
Brings the spring the frost by night.

If it does not rain on St. Michael's (29th of September) and Gallus (October 16th), the farmer will promise a dry spring.

Christmas in mud, Easter in snow.

If at Christmas ice hangs on the willow, clover may be cut at Easter.

Spring and Autumn Rain.

Spring rain damps; Autumn rain soaks. (Russia.)

Summer.

As much fog as plagues you in March, so many thunder-storms after one hundred days.

As much fog in March, so much rain in summer.

If it rains on June 27th, it will rain seven weeks.

As the weather on July 10th, so it will be for seven weeks.

When the sun enters "Leo" the greatest heat will then arise.

As the dog days commence so they end.

Midsummer rain
Spoils wine, stock, and grain.

Happy are the fields that receive summer rain.

Summer comes with a bound; winter comes yawning. (Finland.)

Summer in winter and summer's flood
Never boded an Englishman good.

The Year.

Do not abuse the year till it has passed. (Spain.)

Thunder.

Thunder in spring
Cold will bring.

Wet Spring.

A wet spring—a dry harvest.

Winter.

In winter expect not fair weather from one night's ice.

An early winter is surely winter.

Winter's back breaks about the middle of February.

He that drops a coat on a winter day
Will gladly put it on in May.

Winter will not come till the swamps are full. (South.)

When the days get longer, comes the winter.

If cold at St. Peter's day (February 22d), it will last longer.

The night of St. Peter's shows what weather we will have for the next forty days.

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St. Matthew breaks the ice; if he finds none he'll make some.

After Matthew's no fox will run over the ice.

If on St. Michael's day the winds blow from the north and east, a cold winter may be expected.

Light rain on St. Michael's day is followed by a mild winter.

After a warm autumn a long winter.

When beech acorns thrive well and oak trees hang full, a hard winter will follow with much snow.

Much fog in autumn, much snow in winter.

If October brings much frost and wind, then are January and February mild.

Clear autumn, windy winter.

As many days from the first snow to the next new moon, so many times will it thaw during winter.

When birds and badgers are fat in October, a cold winter is expected.

If on All Saints' day the beech acorn is dry we will stick behind the stove in winter, but if it is wet and not light the winter will not be dry, but wet.

If it is at Martin (November 11th) fair, dry, and cold, the cold in winter will not last long.

If the geese at Martin's day stand on ice, they will walk in mud on Christmas.

If the leaves of the trees and grape-vines do not fall before Martin's day, a cold winter may be expected.

As November 21st, so the winter.

When in November the water rises, it will show itself the whole winter.

When the winter is not early it will not be late.

December changeable and mild,
The whole winter will remain a child.

Lengthened winter and tardy spring are both good for hay and grain, but bad for corn and garden.

Winter thunder and summer's flood
Never boded any good.

Winter finds what summer lays up.

Winter Thunder.

Poor man's death, rich man's hunger.

Winter Fire.

In winter a fire is better than a Muscat rose. (Persia.)

Year.

Wet and dry years come in triads.

A dry year never starves itself.

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PROVERBS RELATING TO MONTHS, WEEKS, AND DAYS.

Month.

The month that comes in good will go out bad.

January.

If grass grows in January, it will grow badly the whole year.

In January if the sun appear,
March and April pay full dear.

(English.)

A January thaw is a sign for a July freshet.

If the grass grows green in January, it will grow the worse for it all the year.

In the Shepherd's Almanac for 1676, among the observations on the month of January we find the following: "Some say that if on the 12th of January the sun shines it foreshows much wind. Others predict by Saint Paul's day, saying if the sun shine it betokens a good year; if it rain or snow, indifferent; if misty it predicts great dearth; if it thunder, great winds and death of people that year."

A favorable January brings us a good year.

Fair on Saint Paul's conversion day (25th) is favorable to all fruits.

In January much rain and little snow is bad for mountains, valleys, and trees.

Saint Paul fair with sunshine,
Brings fertility to rye and wine.

Have rivers much water in January, then the autumn will forsake them. But are they small in January, then brings the autumn surely much wine.

Is January wet, remains empty the barrel.

If Saint Vincent's (22d) has sunshine,
One hopes much rye and wine.
If Saint Paul's (25th) is bright and clear,
One does hope a good year.

If on Saint Paul's it rains and snows, the grain will be costly.

Much rain in January, no blessing to the fruit.

Fruit that grows in January will generally be costly or dear.

January warm, the Lord have mercy.

January wet no wine you get.

Fog in January brings a wet spring.

Hoar frost and no snow is hurtful to fields, trees, and grain. If grain grows in January there will be a year of great need.

Dry January, plenty of wine. January 1st.—Morning red, foul weather, and great need. January 2d.—As the weather is this day so will it be in September.

If the grass grows green in January, it will grow the worse for it all the year.

January fill dyke,
February black and white.

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A summerish January indicates a winterish spring.

Always expect a thaw in January.

A January spring is worth nothing.

A wet January, a wet spring.

February.

Double faced February.

Violent north winds in February herald a fertile year.

February 2d bright and clear
Gives a good flax year.

On Romanus (28th) bright and clear
Indicates a good year.

If the ground-hog is sunning himself on the 2d he will return for four weeks to his winter quarters again. St. Dorothea (the 6th) gives the most snow. When the cat in February lies in the sun, she will again creep behind the stove in March. When the north wind does not blow in February, it will surely come in March.

If February gives much snow
A fine summer it doth foreshow.

There is always one fine week in February.

Of all the months of the year, curse a fair February.

Heavy north winds in February forbode a fruitful year. (German.)

If on the 2d of February the goose finds it wet, then the sheep will have grass on March 25th.

When drops hang on the fence on the 2d of February, icicles will hang there on the 25th of March.

For every thunder with rain in February there will be a cold spell in May.

February rain is only good to fill ditches. (French.)

The nights of the 20th and 28th are called in Sweden "steel nights," on account of their cutting severity.

February makes a bridge and March breaks it.

February doth cut and shear,
February fill dike.
Be it black or be it white;
But if it be white
It's the better to like.

March.

Winds in March and rains in April promise great blessings in May. As much dew as shown in March so much fog rises in August.

In beginning or in end
March its gifts will send.

As it rains in March, so it rains in June.

Is't on Joseph's day (19th) clear,
So follows a fertile year;
Is't on Mary's (25th) bright and clear,
Fertile is said to be the year.

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A damp, rotten March gives pain to farmers.

A dry March, wet April, and cool May
Fill barn, cellar, and bring much hay.
Rain in March, poor harvest.

Dust in March brings grass and foliage.

If it does not freeze on the 10th, a fertile year may be expected.

Snow in March is bad for fruit and grape vine.

March will search, April will try;
May will tell you whether you live or die.

March wet and windy,
Makes the barn full and findy.

March damp and warm,
Will do the farmer much harm.

March dust and March wind bleaches like a summer's sun. (Scotch.)

A peck of March dust and showers in May,
Make corn green and fields gray.

When March is like April, April will be like March.

If March comes in with adder's head,
It goes out with peacock tail.

A dusty March, a snowy February, a moist April, and a dry May, presage a good year. (French.)

A bushel of March dust is worth a king's ransom.

A windy March and a rainy April make a beautiful May.

A dry March never brings its bread.

March comes in like a lamb and goes out like a lion.

So many frosts in March, so many in May.

March wind and May sun
Make clothes white and maidens dun.

A March wisher
Is not a good fisher.

A windy March and a rainy April make a fine May.

March grass never did good.

March in January, January in March, I fear.

April.

Is't in April fair and mild,
The nill may be so much more wild.

Thunder-storm in April is the end of hoar frost. After a wet April follows a dry June. Whatever March does not want April brings along.

April and May are the keys of the year.

A cold April the barn will fill.

A dry April not the farmers will; rain in April is what he wills.

Snow in April is manure; snow in March devours.

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April cold and wet fills barn and barrel.

At St. Gorgen (24th) the meadow turns into hay.

April snow breeds grass.

Moist April clear June.

Wet May, dry July. (German.)

When on St. George (24th) rye has grown so high as to hide a crow therein, a good harvest may be expected.

When April makes much noise
We will have plenty of rye and hay;
When April blows its horn
Then it stands good with hay, rye, and corn.

A cold and moist April fills the cellar and fattens the cow.

When April blows his horn
'Tis good for both hay and corn.

April showers
Bring May flowers.

April borrows three days from March, and they are ill.

May.

A dry May is followed by a wet June. A normal wet and cool May brings a wet June. An abnormal warm May brings a wet June.

Dry May brings nothing.

Many thunder-storms in May,
And the farmer sings hey! hey!

Rain in the beginning of May is said to be injurious to wine.

Cool and evening dew in May
Brings wine and much hay.

Hoar-frost on the 1st of May indicates a good harvest.

The later the black thorn in bloom after May 1, the better the rye and hay harvest.

If May will be a gardener, he will not fill the granaries.

Look at your corn in May,
And you'll come sorrowing away;
Look at it again in June,
And you'll come singing another tune.

A windy May makes a fair year. (Portuguese proverb.)

Water in May is bread all the year. (Spanish proverb.)

A hot May makes a fat churchyard.

A cold May enriches no one.

A May flood
Never did good.

A cold and windy May will fill the barn.

A dry May and a leaking June
Make the farmer whistle a merry tune.

May damp and cool fills the barns and wine-vats.

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Mist in May and heat in June
Makes the harvest right soon.

(Scotch.)

Cast not a clout
Till May be out.

Be it early or be it late,
May will bring the corn quake.

A swarm of bees in May is worth a load of hay;
But a swarm in July ain't worth a fly.

If it rains on Philip's and Jacob's day (1st), a fertile year may be expected to follow.

Cold May brings many things.

A cold May and wind
Makes full barns and a findy.

(Scotch.)

June.

Rain on St. John's day (24th), and we may expect a wet harvest.

Previous to St. John's day we dare not praise barley.

If it rains on St. Peter's day (29th) the bakers will have to carry double flour and single water; if dry, they will carry single flour and double water.

Peter and Paul will rotten the roots of the rye.

O! St. Vitus (15th), O do not rain, so that we may not want barley.

A cold and wet June spoils mostly the whole year.

June, damp and warm, does not make the farmer poor.

Rain on St. Barnabas day is a good harvest in grapes.

Rain on St. John's (24th) will damage the nuts.

If north wind blows in June, rye will be splendid at harvest time.

When it is the hottest in June, it will be the coldest in the next February at corresponding days.

If St. Vitus day (15th of June) be rainy weather,
It will rain for thirty days together.

(Robin's Almanac, 1697.)

Calm weather in June
Sets corn in tune.

A dripping June
Brings all things in tune.

If on the 8th of June it rain,
It foretells wet harvests, men hath sain.

July.

If it rains on the 2d (St. Mary's), then it will rain the next four weeks.

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As July, so the next January.

July, God send thee calm and fair,
That happy harvests we may see;
With quiet time and healthsome air,
And man to God may thankful be.

What July and August left undone in cooking, September will have undone in roasting. (German.)

If it rains on July 10th, it will rain for seven weeks.

Dog days bright and clear
Indicate a good year;
But when accompanied by rain,
We hope for better times in vain.

Whatever July and August do not boil, September cannot fry.

Clear on St. Jacob's day (20th) promises plenty fruit.

If three days previous to St. Jacob's are clear, then the rye will be good.

If the 1st of July be rainy weather,
'Twill rain more or less for three weeks together.

August.

Thunder-storms after Bartholomew's day are mostly violent.

When the dew is heavy in August the weather generally remains fair. When in beginning of August thunder-storms are passing, they will generally last to end of month.

As August, so the next February.

As Bartholomew day, so the whole autumn.

If the first week in August is unusually warm,
The winter will be white and long.

When the months of July, August, and September are unusually hot, January will be the coldest month.

On St. Mary's day (15th) sunshine
Brings much and good wine.

When in August the sun shines warm, moon and stars are bright; it is good for grapes, because they then ripen well.

Matthew's day (24th) bright and clear,
Brings good wine in next year.

A wet August never brings dearth. (Italian.)

When it rains in August it rains honey and wine.

If the 24th of August be fair or clear,
Then hope for a prosperous autumn that year.

Dry August, arid, warm,
Doth harvest no harm.

September.

As September, so the coming March.

September rain is much liked by the farmer.

Is the autumn warm, bright, and clear,
We may expect a fertile year.

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When a cold spell occurs in September and passes without a frost, a frost will not occur until the same time in October.

Fair on the first of September, fair the entire month.

As the deer goes into the heat, so he will again step out.

As the weather on the 8th, so it will be for the next four weeks.

A wet September; next summer drouth, no crops and famine (California.)

If Michael brings many acorns, Christmas will cover the fields with snow.

September rain is good for crops and vines.

Thunder in September indicates a good crop of grain and fruit for next year.

If the storms in September clear off warm, all the storms of the following winter will be warm.

October.

Much rain in October, much wind in December.

If October brings heavy frosts and winds, then will January and February be mild.

When it freezes and snows in October, January will bring mild weather; but if it is thundering and heat-lightning, the winter will resemble April in temper.

Warm October, cold February.

As the weather in October, so will it be in the next March.

If the first snow falls on moist, soft earth, it indicates a small harvest; but if upon hard, frozen soil, a good harvest.

A good October and a good blast,
So blow the hog-acorn and the mast.

November.

As at Catharine (25th) foul or fair, so will be the next February.

As November, so the following March.

Thunder in November indicates a fertile year to come.

Flowers in bloom late in autumn indicate a bad winter.

November, take flail;
Let ships no more sail.

If there be ice in November that will bear a duck,
There will be nothing thereafter but sleet and muck.

December.

If it rains on Sunday before mass it will rain the whole week.

If Christmas finds a bridge, he'll break it; if he finds none, he'll make one.

As Ash Wednesday, so the fasting time.

A warm Christmas, a cold Easter.

A green Christmas, a white Easter.

If windy on Xmas day, trees will bring much fruit.

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If the wind blows much on Stephen's day (26th), the grape will be bad in next year.

If it snows on Xmas night, we expect a good hop crop next year.

Christmas wet gives empty granary and barrel.

At Christmas meadows green, at Easter covered with frost.

Wet causes more damage than frost before, than after Christmas.

December cold, with snow, brings rye everywhere.

Days.

The first three days of any season rule the weather of that season.

The general character of the weather during the last twenty days of March, June, September, and December will rule the following season.

A bad day has a good night.

As the days lengthen,
So the cold strengthens.

The three days of September (20th, 21st, and 22d) rule the weather for October, November, and December.

The first three days of January rule the coming three months.

The last twelve days of January rule the weather of the whole year.

When there are three days cold, expect three days colder.

The twelve days commencing December 25th and ending January 5th are said to be the keys of the weather of the year.

Wednesday.

Wednesday clearing, clear till Sunday.

When the sun sets clear on Wednesday, expect clear weather the rest of the week.

Thursday.

The first Thursday in March, the first Thursday in June, the first Thursday in September, and the first Thursday in December are the governing days for each season. Whatever point of the compass the wind is on these days, that will be the prevailing direction of the wind for that season.

If it storms on the first Thursday, or any subsequent, of a month, count the remaining days of the month, add to this the number of days remaining of the moon, and they will give the number of storms for that season. (Wm. R. Ryan.)

Friday.

If the sun sets clear on Friday, it will blow before Sunday night.

If on Friday it rain,
'Twill on Sunday again;
If Friday be clear,
Have a Sunday no fear.

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Rain on Good Friday forebodes a fruitful year.

Friday is the best or worst day of the week.

If the sun sets clear on Friday, generally expect rain before Monday.

A wet Good Friday and a wet Easter day,
Makes plenty of grass but very little hay.

As the Friday, so the Sunday.

Saturday.

There is never a Saturday without some sunshine.

Sunday.

If it rains on Sunday before mass it will rain all the week.

When it storms on the first Sunday of the month it will storm every Sunday.

First Sunday in month rain, it will rain every Sunday of the month.

Sunday clearing, clear till Wednesday.

The last Sunday of the month indicates the weather of the next month.

If sunset on Sunday is cloudy, it will rain before Wednesday.

Christmas.

A light Christmas, a heavy sheaf.

If the sun shines through the apple tree on Christmas day, there will be an abundant crop the following year.

If on Christmas night the wine ferments heavily in the barrels, a good wine year is to follow. (German.)

The shepherd would rather see his wife enter the stable on Christmas day than the sun. (German.)

If ice will bear a man before Christmas, it will not bear a mouse afterward. (English proverb.)

If Christmas day on Thursday be,
A windy winter you shall see.
Windy weather in each week,
And hard tempests strong and thick.
The summer shall be good and dry,
Corn and beast shall multiply.
(Copied from old MS.)

A green Christmas makes a full graveyard.

A green Christmas indicates a white Easter.

Candlemas Day.

If Candlemas day be fair and clear,
There'll be two winters in that one year.

On Candlemas day the bear, badger, or woodchuck comes out to see his shadow at noon; if he does not see it he remains out; but if he does see it he goes back to his hole for six weeks, and cold weather continues six weeks longer.

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Have on Candlemas day
One-half your straw and one-half your hay.

Candlemas day if it be fair
The half of the winter 's to come and mair.
Candlemas day, if it be foul,
The half of winter 's past at yule.

On Candlemas day
Throw the candle and stick away.
When Candlemas is come and gone
The coal lies on a red-hot stove.

Just half your wood and half your hay
Should be remaining on Candlemas day.

If Candlemas day be fair and bright,
Winter will have another flight;
But if Candlemas day be clouds and rain,
Winter is gone and will not come again.

On Candlemas day just so far as the sun shines in, just so far will the snow blow in.

I would rather see my wife on a bier
Than to see Candlemas clear.

Corpus Christi.

Corpus Christi day clear
Gives a good year.

If rain on Corpus Christi day, the rye granary will be light.

Dog Day.

Rain on first dog day, it will rain for forty days after.

Easter.

Rain on Easter gives slim fodder.

If fair weather from Easter to Whitsuntide, the butter will be cheap.

Easter in snow, Christmas in mud;
Christmas in snow, Easter in mud.

Good Friday.

Good Friday rain brings a fertile year.

Hollantide.

If ducks do slide at Hollantide,
At Christmas day they'll swim;
If ducks do swim at Hollantide,
At Christmas day they'll slide.

Lent.

Dry Lent, fertile year.

Martinmas.

If the wind is in the southwest at Martinmas, it keeps there until Candlemas. (French.)

Pentecost.

Rain at Pentecost forebodes evil.

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Paster Sunday.

If it rains on Paster Sunday, it will rain every Sunday until Pentecost.

Palm Sunday.

If the weather is not clear on Palm Sunday, it means a bad year.

Shrovetide Day.

When the sun is shining on Shrovetide day, it is meant well for rye and peas.

Saint Andrew's Day.

On Saint Andrew's night a glass of water should be placed on the table. If the water has run over in the morning, a good year is to follow; if it does not, expect a poor year for crops. (German.)

Saint Bartholomew.

If it rains on Saint Bartholomew's day (August 24th) it will rain forty days after.

Saint Bartholomew brings cold and dew. (Italian.)

Saint John's Day.

Before Saint John's day (24th of June) no early crops are worth praising. (German.)

Before Saint John's day we pray for rain; after that we get it anyhow.

Saint Lawrence Day.

If on Saint Lawrence day (August 10th) the weather be fine, a good autumn and good wine may be hoped for. (German.)

Saint Margaret's Day.

Rain on Saint Margaret's day (22d of July) will destroy all kinds of nuts. (German.)

Saint Matthew's Day.

If it freezes on Saint Matthew's day, it will freeze for a month together.

Matthew's day (February 25th) breaks the ice; if he finds none, then he'll have some.

Saint Martin's Day.

Saint Martin's day (11th of November) if the wind is in the south-west at Martinmas, it keeps there till after Candlemas. (Scotch.)

Saint Paul's Day.

If Saint Paul's day is fair and clear,
It does betide a happy year.

If Saint Paul's be fair and clear,
It promises a happy year;
But if it chances to snow or rain,
There will be dear all sorts of grain;
Or if the wind does blow aloft,
Great stirs will vex the world full oft;
And if dark clouds do muff the sky,
The fowl and cattle oft will die.

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If Saint Paul's day (25th January) be fair and clear,
It does betide a happy year;
But if it chance to snow or rain,
There will be dear all kinds of grain.
If clouds or mist do dark the sky,
Great store of birds and beasts shall die;
And if the winds do fly aloft,
Then war shall vex the kingdom oft.

(Old English.)

Upon Saint Paul's day
Put oats and barley in the clay.

Saint Patrick's Day.

Saint Patrick's day the warm side of a stone turns up, and the broad-back goose begins to lay.

Saint Stephen's Day.

If it be very windy on Saint Stephen's day, there will be a poor wine crop next year. (German.)

Saint Swithin.

A rainy Saint Swithin is well described by Gay:

Now on Saint Swithin's feast the welkin lours,
And every pent house streams with hasty showers;
But when the swinging signs your ears offend
With creaking noise, then rainy floods impend;
Soon shall the kennels swell with rapid streams,
And rush in muddy torrents to the Thames.

All Saints' Day.

If All Saints' day will bring out the winter, Saint Martin's day will bring out Indian summer.

All Fools' Day.

If it thunders on All Fools' day,
'Twill bring good crops of corn and hay.

Ascension Day.

As the weather on Ascension day, so may be the entire autumn.

Saint Thomas's Day.

Look at the weathercock on Saint Thomas day, at 12 o'clock, and see which way the wind is, for there it will stick for the next quarter.

Saint Vincent's.

If the sun shines on Saint Vincent's day (22d January), a fine crop of grapes may be expected. (German.)

Whit Sunday.

If Whit Sunday brings rain, we expect many a plague.

Whitsuntide.

Whitsuntide rain, blessing for wine.

Rain on Whitsuntide is said to make the wheat mildewed.

Strawberries at Whitsuntide indicate good wine.

Whit Sunday bright and clear
Will bring a fertile year.

Whit Sunday wet, Christmas fat.

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GENERAL PROGNOSTICS.

Some of the various signs of coming rain, which will be found in their respective places, are thus recorded by Swift:

Careful observes may foretell the hour
By sure prognostics when to dread a shower.
While rain depends, the pensive cat gives o'er
Her frolics and pursues her tail no more;
Returning home at night you'll find the sink
Strike your offended sense with double stink.

If you be wise, then go not far to dine,
You'll spend in coach-hire more than save in wine.
A coming shower your shooting corns presage,
Old aches will throb your hollow tooth with rage.

Sauntering in coffee-house is Dulman seen;
He damns the climate and complains of spleen.
Meanwhile the South, rising with dabbled wings,
A sable cloud athwart the welkin flings,
That swilled more liquor than it could contain,
And, like a drunkard, gives it up again.
Brisk Susan whips her linen from the rope,
While the first drizzling shower is borne aslope.
Such is that sprinkling which some careless quean
Flirts on you from her mop, but not so clean.
You fly, invoke the gods; then, turning, stop
To rail; she singing still, whirls on her mop.
Not yet the dust had shunned the unequal strife,
But, aided by the wind, fought still for life,
And wafted with its foe by violent gusts,
'Twas doubtful which was rain and which was dust.
Ah! where must needy poet seek for aid
When dust and rain at once his coat invade?
Sole coat; where dust, cemented by the rain,
Erects the nap and leaves a cloudy stain.

Another author observes of a wet Saint Swithin:

Twice twenty days shall clouds their fleeces drain,
And wash the pavements with incessant rain.
Let not such vulgar tales debase thy mind;
Nor Paul nor Swithin rule the clouds and wind.
If you the precept of the Muse despise,
And slight the faithful warnings of the skies,
Others you'll see, when all the town's afloat,
Wrapt in the embraces of a kersey coat
Or doubled-bottom frieze; their guarded feet
Defy the muddy dangers of the street,
While, with hat unlooped, the fury dread
Of spouts high streaming, and with cautious tread
Shun every dashing pool, or idly stop
To seek the kind protection of a shop.
But business summons; now with hasty scud
You jostle for the wall; the spattered mud
Hides all thy hose behind; in vain you scour.
Thy wig, alas! uncurled, admits the shower.
So fierce Electos' snaky tresses fell

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When Orpheus charmed the rigorous powers of hell;
Or thus hung Glaucus' beard, with briny dew
Clotted and straight, when first his amorous view
Surprised the bathing fair. The frightened maid
Now stands a rock, transformed by Circe's aid.
And now sharp hail falls down in hasty sallies,
And all the tiles with dancing showers rattle,
And the fair Jewess hies to sheltered alleys
To sell her strawberries in brimful pottle,
And farmers praise Saint Swithin come again
To wet the crops with forty days of rain.

Air Currents.

Currents of air change their course frequently, in the higher regions of the air first, and are afterwards continued to the earth's surface; whence we can often foresee a change of wind by observing the clouds. Both the strength of a coming gale and the point from which it will blow may usually be determined by noticing the velocity and direction of the clouds floating along in the upper currents.

Appetite.

When everything is eaten at the table, it indicates continued clear weather.

Aurora.

The aurora when very bright indicates approaching storm.

Barometer.

If it freezes and the barometer falls two or three tenths of an inch, expect a thaw.

If the weather gets warmer while the barometer is high and the wind northeasterly, we may look for a sudden shift of wind to the south. On the other hand, if the weather becomes colder while the wind is southwesterly and the barometer low, we may look for a sudden squall or a severe storm from the northwest, with a fall of snow if it be winter time.

A sudden rise of the barometer is very nearly as dangerous as a sudden fall, because it shows that the level is unsteady. In an ordinary gale the wind often blows hardest when the barometer is just beginning to rise, directly after having been very low.

A rapid rise of barometer indicates unsettled weather. A slow movement the contrary, as likewise a steady barometer, which, when continued, and with dryness, foretells very fine weather.

Bells.

Bells are heard at greater distances before rain.

Boots and Shoes.

Boots and shoes easy to pull on and off indicate dry weather.

Brick Walls.

Brick walls become damp before a rain.

Breeders.

Fine, warm days are called "weather breeders."

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Calm.

A dead calm often precedes a violent gale, and sometimes the calmest and clearest mornings in certain seasons are followed by a blowing, showery day. Calms are forerunners of the hurricanes of the West Indies and other tropical climes.

Camphor Gum.

Camphor gum is said to rise in alcohol before rain.

Clouds.

If clouds drive up high from the south, expect a thaw.

Coals.

Coals covered with thick white ashes indicate snow in winter and rain in summer.

Coals becoming alternately bright and dim indicate approaching storms.

Coffee Bubbles.

When the bubbles of coffee collect in the centre of the cup, expect fair weather. When they adhere to the cup, forming a ring, expect rain. If the bubbles separate without assuming any fixed position, expect changeable weather.

Corns.

Corns giving trouble indicate bad weather.

When corns ache rain follows.

Cream and Milk.

Cream and milk, when they turn sour in the night, often indicate thereby that thunder-storms are about, and will probably shortly take place.

Creeks and Springs.

In dry weather, when creeks and springs that have gone dry become moist, or, as we may say, begin to sweat, it indicates approaching rain. Many springs that have gone dry will give a good flow of water just before rain. (J. E. Walter, Leavenworth, Kans.)

Dandelion.

When the dandelions bloom early in the spring there will be a short season. When they bloom late expect a dry summer.

Dreams.

Dreams of a hurrying and frightful nature and imperfect sleep, are frequent indications that the weather is changed or about to change. Many persons experience these nocturnal symptoms on a change of wind, particularly when it becomes east. In all these cases the effect seems to be produced immediately on the nervous system, and through it on the stomach, so that the stomach shall again react on the sensorium. The symptoms are enhanced by a full stomach and other sources of indigestion. (Forster.)

Dust.

Dust rising in dry weather is a sign of approaching change.

Ears.

Ringing in the ear at night indicates a change of wind.

Ears, when there is a tingling noise, or what is called a singing in them, afford thereby a sign of a change of weather, not simply

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of rain, as has been said, but of barometrical pressure in general. The sudden increase of pressure, like the descent from high mountains, or from balloons, causes in many persons a temporary deafness and roaring in the ears. A sudden fall of the barometer affects also the ears, but in a different manner, like mounting a high hill. (Forster.)

Noises in the ears are frequently precursors of marked atmospheric changes.

Eclipse Weather.

Eclipse weather is a popular term in the south of England for the weather following an eclipse of the sun or moon, and it is vulgarly esteemed tempestuous and not to be depended on by the husbandman.

Epidemics.

Epidemics are disorders of health brought on by atmospherical influence; and modern discoveries have shown how much most prevailing diseases partake of an epidemical nature. Scarlet fever, typhus, the plague, and indeed most diseases of this sort, are now considered epidemical. It would seem that there is a most immediate connection between the peculiar state of the air and the kind of disorders which might be thereby excited. For it may be observed that, even of those disorders which are not generally admitted to be contagious, one particular kind will prevail for a long time. Thus, in winter, the different symptoms of that state of body which we call a cold, appear in some measure to prevail and vary together, so that it is common to hear people talk of the fashionable complaint. Coughs, for a while, are the prevailing symptoms; then sore throats are the most common. It is in spring that certain kinds of cutaneous eruptions usually appear, and in autumn that those irregularities in the functions of the digestive viscera called cholera morbus, &c., happen, and which have been erroneously attributed to eating much fruit. On the other hand, it cannot be considered that atmospheric peculiarities alone produce epidemic and other complaints, which must be regarded as having a compound origin, and as resulting from the operation of peculiar states of the atmosphere on persons of particular states of constitution, otherwise all persons would be affected, which is contrary to experience. There are, probably, innumerable varieties of temperament, of general habits of life, and of pre-existing diseases, which in different subjects vary the effects of the air. And many persons perhaps enjoy a state of health and perfect action, which may be capable of resisting its evil influence altogether. It would perhaps be productive of useful results, if physicians of extensive practice would make accurate meteorological registers during the prevalence of any epidemic or contagious disorders. (Forster's Encyclopædia of Natural Phenomena.)

Epizootic.

Epizootic is a name for epidemic disorders occurring among animals, of which we have many and various instances on record. The state of the electrometer and other meteorological instruments should be carefully examined during the prevalence of such pestilence.

Elder Bush.

A number of superstitions may be traced back to the former connection of the elder bush with the goddess. Witches were thought to produce bad weather by stirring water with branches of elder.

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Electric Lights.

Last night I saw St. Elmo's stars,
With their glimmering lanterns all at play
On the tops of the masts and the tips of the spars,
And I knew we should have foul weather that day.

Fire.

If the fire burns unusually fierce and bright in winter, there will be frost and clear weather; if the fire burns dull, expect damp and rain.

Fire always burns brighter and throws out more heat just before a storm, and is hotter during a storm.

Blacksmiths always select a stormy day in which to perform work requiring extra heat.

A fire hard to kindle indicates bad weather.

When the fire crackles and crackles lightly, it is said to be treading snow. (Old woman.)

Floors.

Floors saturated with oil become very damp just before rain.

Fog Smoke.

When with hanging fog smoke rises vertically, rain follows.

Gale.

If, during the absence of wind, the surface of the sea becomes agitated by a long, rolling swell, a gale may be expected. This is well known to seamen.

General.

But the best sign of all
If soot down the chimney fall.
The dog long asleep so sound,
We know moisture is in the ground.
The guinea at night groans so loud;
It says the rain is in the cloud.
The peacock appears on the scene,
And, with its spots both black and green,
Flies up to roost and screams so shrill,
He is heard o'er all the hill,
Saying that the sun is set;
In the morning we will be wet.
Old master sits and look with sorrow
On the prospect of the morrow.
Other signs just as good
Come from the vermin of the wood.
The owls hollow, the children scare,
Thus he tells when the rain is near.
If you kill the snake and hang it up,
You will find this is good luck;
And this will always bring the rain
To people who are not profane.
The gnats bite and I scratch in vain,
Because they know it is going to rain.
The cat, with her silken paws,
Washing there her whiskered jaws.

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When these signs together come,
Nigger, you had better be at home.

(Negro.)

The cow looks up, and from afar can find
The change of heaven, and muffs it in the wind.
The swallow skims the river's watery face;
The frogs renew the croaks of their loquacious race.
The careful ant her secret cell forsakes,
And drags her eggs along the narrow tracks.
At either horn the rainbow drinks the flood;
Huge flocks of rising rooks forsake their food,
And, crying, seek the shelter of the wood.
Above the rest the sun, who never lies,
Foretells the change of weather in the skies;
For if he rise unwillingly to his race,
Cloud on his brow and spots upon his face;
Or if through mist he shoots his sullen beams,
Frugal of light in loose and struggling streams,
Suspect a drizzling day; * * *
If fiery red his glowing globe descends,
High winds and furious tempests he portends;
But if his checks are swollen with livid blue,
He bodes wet weather by his watery hue;
If dusky spots are varied on his brow,
And streaked with red a troubled color show,
That shallow mixture shall at once declare,
Winds, rain, and storms, and elements at war.

(Virgil.)

DR. JANNER'S REASONS FOR NOT GOING HUNTING.

[From "Weather Folk-Lore," by Rev. C. Swainson, M. A.]

Wind.
The hollow winds begin to blow,

Clouds—Barometer.
The clouds look black, the glass is low,

Soot—Dogs.
The soot falls down, the spaniels sleep,

Spiders.
And spiders from their cobwebs peep.

Sun.
Last night the sun went pale to bed,

Moon.
The Moon in halos hid her head.
The boding shepherd heaves a sigh,

Rainbow.
For, see! a rainbow spans the sky,

Walls—Ditches.
The walls are damp, the ditches smell,

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Pimpernel.

Closed is the pink-eyed pimpernel.

Chairs and Tables.

Hark! how the chairs and tables crack;

Joints.

Old Betty's joints are on the rack.

Ducks.

Loud quack the ducks, the peacocks cry,

Hills.

The distant hills are looking nigh.

Swine.

How restless are the snorting swine!

Flies.

The busy flies disturb the kine,

Swallow.

Low o'er the grass the swallow wings;

Cricket.

The cricket, too, how sharp he sings;

Cat.

Puss on the hearth, with velvet paws,
Sits wiping o'er her whiskered jaws;

Fish.

Through the clear streams the fishes rise,
And nimbly catch the incautious flies;

Glowworm.

The glowworms, numerous and bright,
Illumed the gloomy dell last night;

Toad.

At dusk the squalid toad was seen
Hopping and crawling o'er the green.

Dust.

The whirling dust the wind obeys,
And in the rapid eddy plays;

Frog.

The frog has changed his yellow vest,
And in a russet coat is dressed.

Air.

Though June, the air is cold and still,

Blackbird.

The mellow blackbird's voice is shrill;

Dog.

My dog, so altered in his taste,
Quits mutton-bones on grass to feast;

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Rooks.

And see yon rooks, how odd their flight,
They imitate the gliding kite,
And seem precipitate to fall
As if they felt the piercing ball.
'Twill surely rain; I see, with sorrow,
Our jaunt must be put off to-morrow.

(Dr. Janner.)

Wind.

Ere the rising winds begin to roar,

Sea.

The working seas advance to wash the shore;

Trees.

Soft whispers run along the leafy woods,

Mountains.

And mountains whistle to the murmuring floods.

Waves.

E'en then the doubtful billows scarce abstain
From the tossed vessel on the troubled main

Cormorants.

When crying cormorants forsake the sea
And, stretching, to the covert wing their way;

Coots.

When sportful coots run skimming o'er the strand;

Herons.

When watchful herons leave their watery strand,
And mounting upwards, with erected flight,
Gain on the skies and soar above the sight;

Meteors.

And oft before tempestuous winds arise
The seeming stars fall headlong from the skies,
And, shooting through the darkness, gild the night
With sweeping glories and long trains of light;

Chaff.

And chaff with eddy winds is whirled around,

Leaves.

And dancing leaves are lifted from the ground,

Feathers.

And floating feathers on the waters play;

Thunder.

But when the winged thunder takes his way
From the cold north, and east and west engage,
And at their frontiers meet with equal rage,
The clouds are crushed; a glut of gathered rain
The hollow ditches fills and floats the plain,
And sailors furl their dripping sheets amain.

Rain.

Wet weather seldom hurts the most unwise—
So plain the signs, such prophets are the skies;

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Crane.

The wary crane foresees it first, and sails
Above the storm and leaves the lowly vales;

Cow.

The cow looks up, and from afar can find
The change of heaven, and snuffs it in the wind;

Swallow.

The swallow skims the river's watery face;

Frogs.

The frogs renew the croaks of their loquacious race;

Ant.

The careful ant her secret cell forsakes,
And drags her eggs along the narrow tracks.

Rainbow.

At either horn the rainbow drinks the flood.

Rooks.

Huge flocks of rising rooks forsake their food,
And, crying, seek the shelter of the wood.

Water-fowl.

Besides the several sorts of watery fowls
That swin the seas or haunt the standing pools,

Swans.

The swans that sail along the silvery floods,
And dive with stretching necks to search their food,
Then lave their backs with sprinkling dews in vain,
And stem the stream to meet the promised rain;

Crow.

The crow, with clamorous cries, the shower demands,
And single stalks along the desert sands;

Stars.

The stars shine smarter, and the moon adorns

Moon.

As with inborrowed beams her sharpened horns;

Gossamer.

The filmy gossamer now flits no more,

Halcyons.

Nor halcyons bask on the short sunny shore;

Swine.

Their litter is not tossed by sows unclean,

Mist.

But a blue, droughty mist descends upon the plain,

Owls.

And owls that mark the setting sun declare
A starlight evening and a morning fair.

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Hawk and Lark.

Towering aloft, avenging Nisus flies,
While dared below the guilty Scylla lies;
Wherever frightened Scylla flies away
Swift Nisus follows and pursues his prey;
Where injured Nisus takes his airy course,
Then trembling Scylla flies and shuns his course.
This punishment pursues the unhappy maid,
And thus the purple hair is dearly paid.

Ravens.

Then thrice the ravens rend the liquid air,
And croaking notes proclaim the settled fair;
Then 'round their airy palaces they fly
To greet the sun; and, seized with secret joy,
When storms are overblown, with food repair
To their forsaken nests and callow care.
Not that I think their breasts with heavenly souls
Inspired, as man who destiny controls;
But, with the changeful temper of the skies,
As rains condense and sunshine rarefies,
So turn the species in their altered minds,
Composed by calms and discomposed by winds.

Birds.

From hence proceeds the bird's harmonious voice,

Cows and Lambs.

From hence the cows exult and frisking lambs rejoice.
(Virgil.)

Goose-bone.

When the goose-bone exposed to air turns blue, it indicates rain.

When the goose-bone exposed to air retains its color, expect clear weather.

Gossamer.

In crossing the channel from Calais to Dover, I have observed that captains of vessels have sometimes foreboded fine settled weather from the settling on the masts and rigging of a certain sort of web which we take to be the woof of some spider, though we have observed it to alight on the ships when some way out at sea. (Forster.)

Guitar Strings.

Guitar strings shorten before rain.

Headaches.

Headaches often indicate a change of weather in persons subject to such complaints. Indeed, most periodical disorders seem to be connected with some atmospheric changes. And it is very remarkable that they should so often have their worst paroxysms and the crisis of their terms about the time of the conjunction and the apposition of the moon. (Forster.)

Hills.

Distant hills appear to be near just before rain.

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Horses.

Horses sweating in the stable is a sign of rain.

Human Hair.

Human hair (red) curls and kinks at the approach of a storm and restraightens after the storm.

Indications of Clouds.

After fine weather the first signs in the sky of a coming change are usually light streaks, curls, wisps, or mottled patches of white distant clouds, which increase and are followed by an overcasting or murky vapor that grows into cloudiness.

Lamp Wicks.

Lamp wicks crackle, candles burn dim, soot falls down, smoke descends, walls and pavements are damp, and disagreeable odors arise from ditches and gutters before rain.

Excrescence forming about wicks of lamps and candles, which consume their fuel slowly, indicate rain.

> The nightly virgin while her wheel she plies
> Foresees the storm impending in the skies
> When sparkling lamps their sputtering lights advance,
> And in their sockets oily bubbles dance.

Lamps, from the manner in which they burn, forebode weather. Before rain they burn less bright, the flame snaps and crackles, and a sort of fungous excrescence grows from the wicks, which Virgil was mindful to put among his prognostics of rain and wind. From this indicatorial property of the burning lights arose many superstitions relating to them, as the blue color of the flame being a sign of ghost and death, and so on, of which the following explanation is already offered in the Perennial Calendar:

"Numerous were the omens attached by credulous persons in former days to the manner in which candles burnt, and particularly to their flames. When they burned blue, it was accounted ill luck, or else that some ghostly apparition was announced. Now when the brain and nervous system are in a certain state peculiarly favorable to spectral illusions, the imagination may easily color the flame of a candle, without its really changing its tint; just as, in fevers, people see spots of color on the wall, or imagine insects on the bed-clothes. For the same morbid condition of the animal system which may cause persons to see the spectral prognostic, would in this case cause them to behold the subsequent phantom, and thus the omen and its awful consequence would be viewed together to the support of superstition. Besides this, the particular mode of burning observed in the wicks of lamps and candles is really found to be caused by atmospherical peculiarities, and is a sure sign of rain." (Forster's Encyclopædia of Natural Phenomena.)

Light.

Refractions of light of any remarkable kind frequently forebode rain, sometimes storms; at sea the knowledge of this is very useful. Circles around the sun and moon, mock suns, and other phenomena of this kind, together with the unusual elevation of distant coasts, masts of ships, &c., particularly when the refracted images are inverted, are known to be frequent foreboders of stormy weather.

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Long Island.

When Long Island comes up the harbor, expect a storm. (Connecticut.)

Lumen Lambens.

Lumen Lambens is an electric light seen about plants of a summer evening, of which the particular indications as to the coming weather have not been yet accurately discovered.

Matting.

The matting on the floor is shrinking, dry weather may be expected. When matting expands, expect wet weather.

Marigold.

When the marigold remains closed after 7 p. m., expect rain.

Night Clearing.

After a wet day the whole sky often clears at night. This is not a certain sign of fair weather. The clouds may, and often do, form just as heavily after sunrise next morning.

Oak Trees.

When oak trees bend in January, good crops may be expected.

Ocean.

There are various prognostics deducible from the appearance of the ocean. When the surface of the sea is rough without any wind blowing at the time, expect a gale before long; for the wind already blowing in some distant part of the ocean is the cause of the swell imparted to the sea.

Pavements.

If pavements appear rusty or if stoves or iron or steel rust during the night, rain may be expected soon.

Pipes.

Pipes for smoking tobacco become indicative of the state of the air. When the scent is longer retained than usual, and seems denser and more powerful, it often forebodes rain and wind.

Rain.

The greater distinctness of distant objects indicates rain. The air grows clear and distant objects are seen more clearly just before rain.

Rigging Rope.

The rigging rope on vessels and clothes lines grows slack before rain.

Rheumatic.

Rheumatic pains indicate bad weather.

Rocks.

Rocks sweat before rain.

Ropes.

Ropes difficult to untwist indicate bad weather.

Salt.

Saline impregnations deliquesce before rain. Salts become damp before rain.

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Shifts of Wind.

The most dangerous shifts of wind or the heaviest northerly gales happen soon after the barometer first rises from a very low point, or, if the wind veers gradually, at some time afterwards.

Smoke.

Smoke frequently indicates the state of the air. A person being accustomed to take his pipe early in the morning will have occasion to observe that when the smoke hangs a long while in the air, and scents the place around where he has been smoking, a good hunting day always follows. (Forster.)

Smoke falling to the ground indicates rain.

Smoke ascending indicates clear weather.

When smoke rises from the bottom lands and goes to the mountain, expect an early winter. (Apache Indians.)

When the sun presses the smoke out of chimneys, foul weather follows.

When the smoke in clear weather rises vertically from the chimney, the weather will remain clear.

Snow.

If snow falls in flakes which increase in size, expect a thaw.

Soap.

Soap covered with moisture indicates bad weather.

Soot.

When in cold weather the soot falls from the chimney, the weather will change.

Falling soot indicates bad weather.

Soot burning on back of chimney indicates storms.

When the soot on pots over the fire sparkles, rain follows.

Sound.

Sound travelling far and wide
A stormy day will betide.

When on calm days the sound is carried far, rain follows.

Sounds.

Distant sounds heard with distinctness during the day indicate rain.

Stones.

Quarries of stone and slate indicate rain by a moist exudation from the stones. This seems analogous to the dampness on stones, stone steps, and ornaments, both of stone and of metal, before rain and in damp weather.

Stones sweating in the afternoon, the springs running flusher (commonly called earth sweat), such are atmospheric indications of rain.

Stringed Instruments.

Stringed instruments giving forth clear, ringing sounds indicate fair weather.

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Storm.

It moderates to storm.

Stomach.

This organ in persons of weak and irritable constitutions is often deranged at the change of the weather, and its digestive powers are more under atmospherical influence than people are commonly aware of. Before storms it is particularly liable to uneasy sensations.

Sweating Stones.

A sweating stone indicates rain.

Sweating Wall.

A sweating wall indicates rain.

Tables and Chairs.

The cracking of tables and chairs indicates rain or frost.

Thunder.

Abundance depends upon sour milk; meaning that thunder-storms aid crops.

Thunder-storms almost always occur when the weather is hot for the season; they are generally caused by a cold wind coming over a place where the air is much heated. They do not cool the air; it is the wind that brings them which makes the weather cooler. If a thunder-storm comes up from the east, the weather will not be cooler after it. This will not happen till another storm comes up from the west. Thunder-storms are more violent the greater the difference of temperature between the two currents of wind which produce them.

Toothache.

Toothache is often a forerunner of some change of weather, like other pains, and particularly that species which depends on inflammation of a diseased socket or gum. In certain kinds of weather, and particularly before rain or showers, decayed teeth and diseased gums are very uneasy, and the pain often ceases when the rain begins to fall. The periods of that sort of toothache which depends on the exposure of the nerve in the cavity of the tooth seem to exist independently of any particular weather, and occur most frequently during the night, when the patient first gets warm in bed. The progress of this sort of toothache is often as follows: The pain after awhile becomes continuous instead of being periodical, and by degrees subsides, but the socket then and ultimately the gum become diseased, and are thence liable to be affected by the state of the weather above described. (Forster's Encyclopædia of Natural Phenomena.)

Tortoises.

Tortoises creep deep into the ground so as to completely conceal themselves from view when a severe winter is to follow. When a mild winter is to follow they go down just far enough to protect the opening of their shells.

Trees.

Trees snapping and cracking in the fall indicates cold weather.

Vernal Equinox.

If the wind is northeast at vernal equinox, it will be a good sea-

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son for wheat and a poor one for corn; but if south or southwest, it will be good for corn and bad for wheat.

Walls.

When in cold weather the walls begin to show dampness, the weather changes.

Water Bubbles.

When water bubbles from the ground, expect rain on the following day.

Wells.

Water rising in wells and springs indicates approaching rain.

Wet and Dry.

Dust in the wheat and dab in the oats—that is, sow wheat in dry weather and sow oats at any time, even in wind.

Wheat and Corn.

If the spring is dry, sow wheat; if it is wet, plant corn.

Wind.

The whirling wind the dust obeys,
And in the rapid eddy plays.

Winter Storms.

In winter, after the prevalence of easterly winds, if the barometer begins to fall and the thermometer to rise, a gale which commences to blow from the southeast will veer to southwest, while the barometer falls constantly. As soon as the wind passes the southwest point the barometer begins to rise, a heavy shower of rain falls, and a strong west-northwest or northwest wind may follow, after which the sky clears and the weather becomes colder.

Winter Storm.

If in winter the barometer rises very high, and a thick fog sets in, it is a sure sign that the southwest and northeast winds are "fighting each other." Neither of them can make head against the other, and there is a calm, but there is a great danger of such a state of things being followed by a bad gale.

Winter.

Six weeks from the time snow is seen on Mount Mansfield, winter comes to stay.

Wood Fire.

Wood-fire coals frequently snuffing during the winter months foretell snow.

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269 WEST ELEVENTH STREET,
New York City, October 16, 1882.

Sergeant NEWLIN, *U. S. S. Office,*
Cleveland, Ohio:

DEAR SIR: I send with this two selections, taken as stated. Although, perhaps, not quite what you seek, there may be enough in them to warrant your perusing. As to their fitness for the purposes you demand I leave to you.

Trusting they may not be unacceptable, I am, very respectfully,
Your obedient servant,

CHAS. WARD RAYMOND.

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The following poems are, perhaps, more curious than interesting. They afford, however, some idea of the superstitious dread with which the advent of Christmas day must have been regarded in these early times, not merely by the vulgar, but by all classes of our forefathers, for the Francis Moores and Raphaels of the fifteenth century found even kings willing believers in their extravagant predictions. From the allusions in each verse of the first poem to the risks that those who steal subject themselves to, one would almost suppose thieving to have been the fashionable vice of the age, practiced alike by both rich and poor, and that there was great need of such injunctions against it.

Both of these poems are from the same Harleian MS. in the British Museum (No. 2252, fols. 153–4). Christmas with the poets. London. David Bogue, 86 Fleet street. 1855.

I.

Lordlings, all of you I warn:
If the day that Christ was born
Fall upon a Sunday,
The winter shall be good I say,
But great winds aloft shall be;
The summer shall be fair and dry.
By kind skill and without loss,
Through all lands there shall be peace,
Good time for all things to be done,
But he that stealeth shall be found soon;
What child that day born may be,
A great lord he shall live to be.

If Christmas day on Monday be,
A great winter that year you'll see,
And full of winds, both loud and shrill,
But in the summer, truth to tell,
Stern winds shall there be and strong,
Full of tempests lasting long;
While battles they shall multiply,
And great plenty of beasts shall die.
They that be born that day I mean,
They shall be strong each one and keen.
He shall be found that stealeth ought,
Though thou be sick thou dieth not.

If Christmas day on Tuesday be,
That year shall many women die,
And that winter grow great marvels;
Ships shall be in great perils.
That year shall kings and lords be slain,
And many other people near them;
A dry summer that year shall be,
As all that are born therein may see;
They shall be strong and covetous.
If thou steal aught, thou losest thy life,
For thou shalt die through sword or knife
But if thou fall sick 'tis certain
Thou shalt turn to life again.

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If Christmas day, the truth to say,
Fall upon a Wednesday,
There shall be a hard winter and strong,
With many hideous winds among.
The summer merry and good shall be,
And that year wheat in great plenty;
Young folks shall die that year, also,
And ships at sea shall have great woe.
Whatever child that day born is,
He shall be doughty and gay, I wis,
And wise and crafty also of deed,
And find many in clothes and bread.

If Christmas day on Thursday be
A windy winter you shall see;
Windy weather in each week,
And hard tempests strong and thick.
The summer shall be good and dry,
Corn and beasts shall multiply;
That year is good lands for to till;
Kings and princes shall die by skill.
If a child that day born should be,
It shall happen right well for thee;
Of deeds he shall be good and stable,
Wise of speech and reasonable.
Whoso that day goes thieving about,
He shall be punished without doubt;
And if sickness that day betide
It shall quickly from thee glide.

If Christmas day on Friday be,
The first of winter hard shall be;

With frost and snow, and with great flood,
But the end thereof it shall be good.
Again, the summer shall be good also;
Folk in their eyes shall have great woe;
Women with child, beasts, and corn,
Shall multiply and be lost none.
The child that is born on that day,
Shall live long and lecherous be alway.
Who stealeth ought shall be found out;
If thou be sick it lasteth not.

If Christmas day on Saturday fall,
That winter's to be dreaded by all;
It shall be so full of great tempest,
That it shall slay both man and beast;
Great store shall fail of fruit and corn,
And old folk die many a one.
What woman that day of child doth travail,
She shall give birth in great peril;
And children born that day by faith,
In half a year shall meet with death.
The summer shall be wet and ill;
Thou shalt suffer if aught thou steal;
Thou diest of sickness do thee take.

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II.

If Christmas day on the Sunday be,
A troublous winter ye shall see,
Mingled with waters strong;
Good there shall be without fable,
For the summer shall be reasonable,
With storms at times among.

Wines that year shall all be good,
The harvest shall be wet with flood,
Pestilence shall fall on many a country;
Ere that sickness shall have past,
And while great tempests last,
Many young people dead shall be.

Princes that year with iron shall die,
There shall be changing of many lords high,
Amongst knights great debate,
Many tidings shall come to men,
Many wives shall be weeping then,
Both of poor and great estate.

The faith shall then be hurt truly,
For divers points of heresy
That shall then appear,
Through the tempting of the fiend;
And divers matters unkind,
Shall bring great danger near.

Cattle shall thrive one and the other,
Save oxen, they shall kill each other;
And some beasts they shall die;
Both fruit and corn will not be good,
Apples will be scarce for food,
And ships shall suffer on the sea.

That year on Monday, without fearing
All things well thou mayst begin,
They shall be profitable;
Children that on this day are born,
I' faith shall mighty be and strong,
Of wit full reasonable.

East Wind.

A change of wind, particularly a change from any other quarter to east, makes most people feel uncomfortable, and produces headaches in persons who are subject to them. Similar changes have the most violent effects when they happen about the new or full moon. It is difficult to ascertain in what degree the directions and changes of wind are under the influence of electricity, but there are many circumstances which would incline one to believe that these changes are dependent on some similar principle to that which causes atmospheric diseases in the human body, for certain winds, as well as certain changes of wind, are known to produce epidemics in many countries where violent atmospherical complaints pre-

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vail; and in every country of the world I believe the east wind is almost proverbially unhealthy. Casual changes to east produce headache and nervous complaints, and a long-continued wind from that quarter produces an unwholesome season. Another curious thing is, that with east winds good astronomical observations cannot be made, the luminous objects seeming to dance or wave about in the field of the telescope. (Atmospheric Phenomena—Forster.)

Shooting-Stars a Prognostic of Bad Weather.

The connection between shooting-stars and bad weather, mentioned by many ancient writers, will appear probable if we consider certain facts established in the domain of modern science. Of all the various theories advanced to explain this startling phenomenon (termed meteor, fire-ball, shooting-star, moon-stone, sun-stone), that seems to be the most probable which considers them planetary bodies of very small size, circulating in an orbit round the sun, as our earth, and getting into that of the latter, entangled by her attraction, which occasionally brings down some of them upon her surface. Numerous planetary bodies, called Ceres, Pallas, &c., exist between Mars and Jupiter, and similar bodies of smaller dimensions may exist between the earth and its neighbors in the solar system.

Periodicy is a great fact in cosmical arrangements, and this phenomenon of shooting stars, &c., is strikingly periodical. Induced, apparently, by certain popular weather maxims among the French, M. C. St. Claire Deville has investigated the subject, and his conclusions are positive as to the "perturbations of the earth's temperature," coincident with the phenomenon as noticed from time immemorial in about the first fortnight of February, May, August, and November. M. Deville even ventures upon general conclusions from the fact. He says: "Do not all these considerations almost necessarily lead us to infer the influence of these critical periods, by their sudden variations of temperature, not only on the health of the vegetable creation, but that of the human race? Should we not examine the registers of hospitals, to see if certain diseases are not more frequent on certain days of certain years? Can we not even go back to the past and see, in the history and chronicles of past ages, if there are some traces of periodicy in certain great perturbations in the health of nations like the two invasions of cholera, which perhaps by chance occurred in 1832 and in 1849, about the center of the two critical periods, and which came from the north like the aurora borealis, since it seems, also, that it is these great atmospheric waves that propagate the perturbations of temperature?" In confirmation of this view we may notice the cattle plague, and the cholera still hovering over us and likely to recommence its ravages.

Professor Erman, of Berlin, writing to Arago, in 1840, said that "the two swarms or currents of asteroids (planetary bodies) which the earth meets on the ecliptic, respectively, about the 10th of August and the 13th of November, annually intervene between the earth and the sun, the first in the days between the 5th and 11th of February, the second from the 10th to 15th of May. Each of these conjunctions annually causes at those dates a very remarkable extinction of the heating ray of the sun, and thereby lowers the temperature at all points of the surface of the globe."

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With respect to the November display of the phenomenon, it appears that its maximum was in 1799 and in 1833. Since then it has almost entirely ceased, but according to the prediction of Olbers it will resume the ascendant in 1867. Humboldt and others have reported on these displays, but that of the night of the 12th and 13th of November, 1833, in the United States, as described by Olmstead, needs only to be mentioned for our present purpose. No less than 300,000 masses, forming parts of the solar system, passed through that part of our terrestrial atmosphere which was visible at Boston, Mass.

"It was supposed that they were only stopped in the atmosphere and prevented from reaching the earth by transferring their motion to columns of air, large volumes of which they would suddenly and violently displace.

"It was remarked that the state of the weather and the condition of the seasons following this meteoric shower were just such as might have been anticipated from these disturbing circumstances of the atmospheric equilibrium."

M. C. Gravier believes that meteors show the direction of the coming wind; that their slow motion foretells a calm to ensue, or to continue if it exists; in fact, he says they are our weather-cocks and anemometers in the upper regions of the sky. He predicts that the rest of the present year (1866) will be more dry than wet, and the temperature above the average.

Our object in this article is merely to draw attention to the critical periods. It is obvious that if the passage of these meteors take place by day we cannot see them, so that their non-appearance is no reason why we should not be on our guard. From a list of storms obligingly given us by the meteorologic office as having in past years occurred at or about some of the periods we have named, and from our own investigations, we believe that the subject is worthy of attention, suggestive of caution at those critical periods, and altogether deserving a more lengthy consideration than we can give it in our limited space on this occasion.

During the great Barbadoes hurricane, August 10, 1831, fiery meteors fell perpendicularly from a vast height. The correspondence of the date, August 10th, is striking, and all are familiar with the great "November Atmospheric Wave," and its storms, especially the great Crimean hurricane of disastrous memory (November 14, 1855). (Manual of Weathercasts, by Andrew Steinmetz.)

The following interesting report relative to weather prognostics of the Zuñi Indians was furnished by Mr. G. H. Cushing, assistant ethnologist of the Smithsonian Institution:

ZUÑI, NEW MEXICO,
September 29, 1882.

D. D. GRAHAM, Esq.,
Acting subagent of the Zuñi Pueblo Indians:

DEAR SIR: I have the honor to submit herewith a few hastily-prepared statements from my notes relative to the weather prognostics, proverbs, &c., of the Zuñi Indians:

With these Indians the study of weather, both from practical and superstitious standpoints, has been the result of necessity, the growth of generations. It is therefore no matter of surprise that

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the accompanying questions penetrate a rich domain with them of research.

Indeed, nothing short of a moderately lengthy treatise would do the subject, which is withal popularly a most interesting one, justice.

Zuñi worship, like that of the ancient Greeks, relates principally to this life.

To this life water is considered the greatest of necessities and blessings. Hence, rain, the clouds, springs, and all beings, things, and phenomena related to them, are regarded as sacred. A better understanding of this may be gleaned from the fact that in Zuñi mythology the sky and the celestial bodies, many terrestrial objects, and all phenomena of either, are regarded not less than all organized beings as animate and conscious existences, the whole, including man, being denominated *á hâ i*, or, The Beings. The greater number of the latter are included under two great classes:

1. Kia-pin = á-hâ-i; and
2. Kiä-shëm = á-hâ-i; the former signifying—
1. Beings (belonging) *to* water, and the latter,
2. Beings *of* the water.

These *beings*, as above explained, include all *phenomena* or *objects* connected with water, are supposed to control greatly the weather, &c.; hence the sayings relative to them and their influence are legion.

I have selected only a few of the principal of these, illustrative merely of the questions which I find in General Hazen's blank, regretting that lack of time does not permit of a more exhaustive treatment of his subject.

In order that a few examples of the original Zuñi may be given with the English renditions, I have answered the questions on a separate piece of paper, indicating them by their number, as given in General Hazen's blank.

1. The Sun.

"Yä to k'ia kiá kwap, i lo na kia ná, thli to nì ä hi ha." (When the sun is in his house (*i. e.*, in a halo or circle) cloud it will, rain will come soon.)

"Yä to k'ia kwa k'ets a nam hortil k wa tâp, i tchi tin gä mu k'ia ni ha, thli te kwa ni k'ia ná." (When the sun sets unhappily (with a haze-veiled face) then will the morning be angry with wind, storm, and sand.)

2. The Moon.

The moon, being a deity of the lives of men, does not belong to the "*k'iä she ma hâi;*" hence the proverbs relative to her, the legion, have little connection with weather prognostics. Two, however, are very often repeated: Yä o non kia kwop, í lo na kia ná, thli to kiaw i a ni ha; meaning, the moon, if in house be, cloud it will, rain soon will come. Yä o non an no pon i shi la a kiap (the moon, her face, if red be), kiä shë ma an te peie á (of water speaks she). The changes in the moon indicate rather changes in the affairs of men than in weather.

3. The Stars.

With the exception of six of the stars, viz: of the north, of the west, of the south, of the morning, of the evening, of the zenith, and of the lower regions (or horizon), the smaller celestial bodies re-

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late also more to the affairs of men than to the weather. These six are spoken of as are the sun and moon. There is, however, one proverb which differs from those of the latter: Morgä tchu we in sha na í mup, a li hortel té k'ia na. The stars sit still if they do (the times) to be pleasant are. (When the stars sit still the times are to be pleasant).

4. The Rainbow.

A mi to lan u ha í ton illi; thli to i peyu á. (The rainbow has but a bad character: she ever commands the rains to cease.)

5. The Fogs.

Shi wai a horthl yëil la ke'a á pei ni up, té tsï ti i há. (When the mist rolls down from the mountains, cold will it be.)

6. The Dew.

"When the dew is seen shining on the leaves, So ho! the mist rolled down from the mountains last night, &c." (See proverbs relating to fog.)

7. The Clouds.

"When the clouds rise in terraces of white, soon will the country of the corn-priests be pierced with the arrows of rain."

"When the clouds rise in balls of blue mist from the horizon, snow will soon whiten the country of the corn-priests."

8. The Frost.

With the coming of the frost grows the corn old.

9. The Snow.

"If much snow be spread on the mountains in winter, the season of planting will be made blue with verdure."

10. The Rain.

"With the north rain leaves the harvest."

The west rain, it comes from the world of waters to moisten the home of the Shi wi (Zuñi).

The south rain brings with it the beautiful odors of the hand of everlasting summer and brightens the leaves of growing things.

"With the rain of the northeast comes the ice fruit (hail)."

11. The Thunder.

The distant thunder speaks of coming rain."

With the first thunder the Beloved (gods of rain) open their portals.

It first thunders in the north: Aha! the bear has stretched his left leg in his winter bed.

It first thunders in the west: Aha! the bear has stretched his left arm in his winter bed.

It first thunders in the south: Aha! the bear has stretched his right leg in his winter bed.

It first thunders in the east: Aha! the bear has stretched his right arm, and comes forth, and then winter is over.

12. The Winds.

Wind from the north, cold and snow.

Wind from the western rim of the northland, snow.

Wind from the world of waters, clouds.

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Wind from the southern rim of the world of waters, rain.

Wind from the land of the beautiful red, lovely odors, and rain.

Wind from the wooded cañons, rain and mist-clouds.

Wind from the land of day it is the breath of health, and brings the days of long life.

Winds from the lands of cold, the rain before which flees the harvest. Winds from the lands of cold, the fruit of ice.

Winds from the right hand of the west is the breath of the god of sand-clouds.

13. Zoothistic Prognostics.

I am compelled to leave this department, from want of detailed notes, almost untouched, although there is scarcely an action of the animals without its interpretation, either relative to weather or to the affairs of men.

13. Bats.

Bats who speak flying, tell of rain for to-morrow.

14. Birds.

When chimney-swallows circle and call, they speak of rain.

When the bluebirds twitter and sing, they call to one another of rain.

When the summer birds take their flight, goes the summer with them.

16. Frogs.

When the frogs warble, they herald the rain.

17. Butterfly.

When the butterfly comes, comes also the summer.

When the flowers dry up, the birds of summer flee. See also proverbs relative to summer birds (14).

When the world is damp, spring the seeds of the beloved (mushrooms and other apparently spontaneous growths).

19. "When the locks of the Navajos grow damp in the scalp-house, surely it will rain."

The seasons in Zuñi are only three—spring, summer, and winter. They are supposed to result from the change of weather and the will of the sun; hence are themselves prognosticated.

The months are lunar, and there are no days of the Christian week, save Sunday, when the Indians cannot trade, and which for this reason they know of.

Relative to proverbs of the months and seasons, I can only say there are many, but, as in the case with other matters above alluded to, they are rather relative to the affairs of life (mostly sacred obligations and observances) than to weather and agricultural operations.

Very respectfully,

G. H. CUSHING,
Assistant Ethnologist.

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PART II.

INSTRUMENTAL AND OTHER LOCAL INDICATIONS OF APPROACHING STORMS.

[Compiled from reports made to the Chief Signal Officer by observers of the Signal Service, U. S. A.]

Albany, N. Y.

Storms set in with southerly winds, and are always preceded by falling barometer, and usually by falling temperature, with nimbus or cumulo-stratus clouds.

Alpena, Mich.

Cirrus, cirro-cumulus or cirro-stratus clouds in upper, and a dull haze in lower atmosphere. Lower winds from westerly direction, falling barometer and rising temperature.

Atlantic City, N. J.

Coronas and halos; prevalent haziness in lower atmosphere; cirro-stratus clouds; unusual amount of humidity; stationary barometer occurring after either a considerable rise or fall of the mercury; backing winds.

Augusta, Ga.

Slowly falling barometer, with rising temperature, and wind from the east or southeast, usually indicates rain, which continues until wind veers to the west or northwest; cirro-stratus clouds precede wind and rain, and are frequently noted from one to three days in advance.

Baltimore, Md.

General storms by very high barometer, dense haze, light, variable winds from east or northeast.

Southeast and southwest storms preceded by high temperature, low barometer, and brisk northwest winds.

Local storms preceded by unusually high temperature, cumulus clouds, and rapidly falling barometer.

Fort Benton, Montana Ter.

Wind storms, preceded by low barometer, low humidity, cirrus or cumulus clouds, with wind from west or southwest, generally the latter.

Rain, preceded by cumulo-stratus clouds, with wind from west to north and northeast, barometer moderately low, remaining stationary during storm.

Snow-storm, same condition as rain, except that barometer falls and stratus clouds prevail.

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Bismarck, Dak.

Rapidly falling barometer, rising temperature, and light southerly winds indicate rain or snow, according to season of year.

Falling barometer, rising temperature, with wind from northeast or east, indicate snow.

Fine cirrus and cirro-stratus, floating low, presage wind.

Haze in night or early morning, or cumulus clouds, sharp and well defined, moving from west or southwest, indicate fair weather.

When snow is falling, and the wind backs from east to north, with decreasing velocity, clear weather may be expected.

Breckenridge, Minn.

Sudden movement of barometer in either direction, rising temperature, light cumulus clouds, with northwest wind, precede wind-storms.

Sudden depression of barometer, rising temperature, cumulus or cumulo-stratus clouds, with southeast wind, precede rain or snow storms.

An approaching storm is indicated by unusual clearness of the atmosphere, and frequently by lunar halos.

Buffalo, N. Y.

Rising barometer, with comparatively clear sky, mild temperature and light to fresh winds from west to southwest.

Light cirrus or cirro-stratus clouds move from the west, apparently very high in the atmosphere; humidity and wind decrease, and occasionally a calm ensues. This is followed by light winds from northeast, east, or southeast. Barometer begins to fall, and temperature to rise slowly; humidity increases steadily; cumulus clouds appear, moving slowly from west or southwest, and are soon followed by cumulo-stratus; wind increases in velocity, and shortly before precipitation occurs a dense white vapor, resembling haze, and moving with the surface current, gradually covers the whole sky.

Wind-storms are preceded by unusually rapid barometric depression, increase in temperature and humidity, stratus or cumulo-stratus clouds, with southwest winds. Water at the head of Lake Erie rises in advance of the storm.

Burlington, Vt.

Rapidly falling barometer, rising temperature, and cumulo-stratus or stratus clouds, with wind from south or southwest.

Cairo, Ill.

Falling barometer, rising temperature, stratus or cumulo-stratus, with wind from the south or southwest, precede rain; wind-storms are preceded by rising barometer, falling temperature, and cirro-stratus clouds, with brisk wind from west or northwest. Well defined lunar halos are followed by rain.

Cape Henry, Va.

Northeast storms are preceded by rapidly rising barometer and upper clouds (usually cirrus), moving rapidly from northeast in long white sheets changing to stratus in short time, and covering the whole sky.

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Southeast storms are preceded by rapidly falling barometer, unusually low humidity and variable southwest winds. Heavy ocean-swell in advance of storm and from same direction in which storm is advancing.

Cape Hatteras, N. C.

Winter rain storms preceded by rapidly falling barometer and heavy cirro-stratus clouds, with wind from southeast or southwest.

Upper clouds moving from southwest indicate rain, but if from west or northwest, fair weather.

Heavy ocean-swell from southeast indicates rain from that direction. Wind storms preceded by dense haze, rapidly falling barometer, and rising temperature with southerly winds and with northerly winds, rising barometer, and falling temperature with low humidity.

Cape May, N. J.

Easterly storms are generally preceded from twelve to twenty-four hours by an unusually clear atmosphere, with high barometer and temperature. Light winds prevail and mirage in various forms, but more particularly the variety known as "loom," which enlarges distant objects in such a manner as to render distance very deceptive. The sea comes in with a long, heavy, easterly, ground swell, and a decided increase occurs in the rise of the tides. An unusual twinkling of stars is observed, and a larger number of them are visible, extending nearly to the horizon. The first clouds are generally cirrus, from the west or southwest, followed often by haze, which gradually thickens and lowers into a stratus, forming a heavy bank in the southwest, which gradually extends over and into the northeast, the whole mass deepening and lowering until nimbus clouds form and appear moving with the wind. Storms of the greatest severity and duration are generally with the wind from north-northeast to east-northeast, and rapidly increase in violence. They are attended with, or preceded by, a rapid depression of the barometer. Temperature rises for a veering, and falls for a backing, wind.

Easterly storms, slowly forming, are attended by moderate winds.

Storms from the southeast are often violent, but of short duration, lasting only from six to twelve hours, and shifting suddenly to the opposite direction.

Charleston, S. C.

During the months of April, May, June, July, August, and September, storms are preceded by slowly diminishing pressure, rising temperature, increasing humidity, and cumulus clouds, with wind from the west and northwest.

Winter storms come from the northeast and southeast. Those from the northeast are preceded, for several days, by brisk wind from that direction, rapidly rising barometer, slowly falling temperature, increasing humidity, with stratus clouds moving slowly from the northeast until the whole sky is covered and a dense mist begins to fall, which soon becomes rain as the clouds approach the earth. Storms from the southeast are the most dangerous. They are preceded by light and variable southeast winds, falling barometer, and rising temperature. The day immediately preceding the

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storm is generally a fine one, with a few cirrus or cirro-stratus clouds, increasing humidity, wind variable, and rising slowly.

Cheyenne, W. T.

Rain-storms are preceded by a low barometer from twenty-four to forty-eight hours before their arrival, with wind from southeast, east, northeast, and north.

Snow-storms strike the station from southwest, northwest, or north, all storms of magnitude coming from the latter direction.

Wind-storms are preceded by a low barometer, with much briefer warning than in the case of rain and snow storms, often occurring within two or three hours after the first instrumental premonition. Temperature rises and humidity increases; cirrus clouds move from west to northwest.

Cincinnati, Ohio.

Ordinary rain storms, preceded by falling barometer, increased temperature, hazy atmosphere, cirrus clouds, and northeast wind.

Corsicana, Tex.

Approach of norther indicated by bank of clouds in north or northwest when the balance of sky is clear.

Gentle or brisk east wind precedes rain. Southwest or west wind indicates the approach of clear, dry weather.

Davenport, Iowa.

Rain storms generally preceded by an east, southeast, or south wind.

Wind storms preceded by steadily falling barometer, with light wind from southwest.

Denver, Colo.

Falling barometer, rising temperature, cirro-stratus clouds, with westerly winds. Most reliable indications of storms are seen to the north and west on the mountains. A cap of clouds on the high peaks, or low cumuli below the summits, presage rain or snow. For wind, a black wall of cloud generally forms between high peaks and the foot-hills, completely hiding the peaks and extending only five or ten degrees above the horizon.

Detroit, Mich.

Falling barometer from twelve to twenty-four hours in advance of storm, with wind from southeast or northeast.

Dodge City, Kans.

Falling barometer, with light southeast wind, hazy atmosphere, cirrus clouds, and low humidity.

Dubuque, Iowa.

Wind storms preceded by rapid fall of barometer, with cirro-stratus and stratus clouds moving from the west; wind changeable, backing from southeast to west.

Rain-storms preceded by slowly falling barometer and large masses of cirrus and cirro-cumulus moving from southeast. Surface winds southwest, south, and southeast.

Duluth, Minn.

Northeast storms, preceded by hazy atmosphere and fog over the lake, the former turning to stratus and the latter to nimbus cloud

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as storm approaches. Falling barometer, increasing humidity, and falling temperature.

Northwest storms by low and falling barometer, rising temperature, high and increasing humidity, with cumulus and cumulo stratus clouds. This class of storms most frequent in winter and spring.

Northern storms by falling barometer, falling temperature, increasing humidity, and cumulus clouds; most frequent in winter, and accompanied by snow.

Southern storms by falling barometer, rising temperature, increasing humidity, with hazy atmosphere.

Eastern storms by high and rising barometer, rising temperature, increasing humidity, with stratus clouds.

Western storms by falling barometer, high or rising temperature, and humidity, with heavy banks of stratus clouds in western sky. Occur at all seasons of year.

Fogs are usually followed by rain within twenty-four hours.

Eastport, Me.

Northeast storms are preceded by slowly falling barometer, falling temperature, stratus clouds in the east, which spread over the entire sky.

Southeast storms are preceded by heavy fall of barometer, falling temperature, increasing humidity, stratus clouds, and detached "scud," with wind shifting from east to southeast.

In summer a continuance of southeast wind is followed by rain. Sea-gulls gather together in flocks near the shore, uttering a peculiar cry.

Erie, Pa.

Storms from north, northwest, and west are preceded by falling barometer, brisk to high southerly winds, rising temperature, and increasing humidity.

Storms from the southwest to southeast are preceded by slowly falling barometer, rising temperature. With steady south wind at any season of the year rain is probable within twelve hours.

Fort Gibson, Indian Ter.

Falling barometer, rising temperature and low humidity, the latter forming an important element. If wind veers suddenly from southwest to west, rain follows; if this change occurs slowly, wind follows.

Cirro stratus changing to cumulo stratus twenty-four to forty-eight hours in advance of storm.

Fort Sully, Dak.

Rapidly rising and very high barometer, low temperature, cirrus or cirro-stratus clouds moving from the north or northwest, with surface wind from southeast, backing to north and northwest. High summer temperature, usually followed by brisk and high south and southeast wind.

Galveston, Tex.

"Northers," preceded by slowly falling barometer, decreasing humidity, wind south or southeast, veering to north, with cirrus or cirro-cumulus clouds moving from west or northwest.

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Indianapolis, Ind.

Sudden storms, by sudden fall of barometer, increase of temperature, high humidity, with haze in lower and cirrus clouds in upper atmosphere, moving from the west.

Winter storms, by high and rising barometer, rising temperature, low humidity, cirrus and cirro-stratus clouds moving from the west. These followed by falling barometer, with wind veering to east and southeast, and stratus clouds.

Indianola, Tex.

"Northers" are preceded by protracted southeast winds, rapid rise of barometer from four to six hours in advance of storm, high humidity, with cirrus clouds moving from the west.

Jacksonville, Fla.

Falling barometer and rising temperature from four to six days in advance of storm. Hazy atmosphere, wind north to northeast, cirrus clouds moving from west and southwest; wind veering to east, southeast, and southwest.

Keokuk, Iowa.

Falling barometer and cirrus clouds, with fresh easterly wind, precede rain or snow, according to season.

Key West, Fla.

"Northers," from October to May, preceded by hazy atmosphere, easterly winds veering to southerly, cirrus, cirro-stratus, and cirro-cumulus clouds, moving slowly from the southwest and west, and finally a bank of stratus clouds in the western horizon, apparently stationary. Falling barometer, high and rising temperature and humidity.

Cyclones from July to November are preceded by northerly and easterly fresh and brisk winds, drizzling rains at intervals, for several days, low and nearly stationary barometer, steady, high temperature, dark scud flying low, with surface wind, and cirrus, cirro-stratus, and cirro-cumulus clouds above, moving slowly from the south and west. The height and action of barometer and state of weather are the most notable signs.

Rain storms prevail from May to November, are preceded by hazy, close atmosphere, average low barometer, high temperature, rising of "thunder heads" in the horizon in the direction from which rain is to be expected, with an almost imperceptible motion and an appreciable fall of barometer, several hours before storm approaches.

Knoxville, Tenn.

Barometer moves rapidly for a storm of short duration, temperature rises, wind from east-southeast, south and southwest, from eight to twenty-four hours previously, with upper clouds moving from the west, wind stronger and of greater duration, with rising rather than falling barometer. Rapid movement of cirro-stratus clouds indicates wind, but is seldom observed.

La Crosse, Wis.

Barometer falls steadily for twenty-four hours, with rising temperature, increased humidity, and cirro-stratus clouds before rain. Wind storms same as above, with addition of cirrus of great elevation moving in opposite direction to surface wind, and apparently

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highly electrified. Winter storms are preceded by gentle south or southwest wind, veering to north or northeast.

Leavenworth, Kans.

Rain storms are preceded from twelve to forty-eight hours by barometer falling steadily, increasing humidity, high temperature, with wind east or south, cirro-stratus clouds in southern or western horizon, and eastern horizon obscured by haze.

Red sky at sunrise indicates strong winds; if humidity is much below the mean, the color is usually a brilliant scarlet; if humidity is high, the color is more crimson, with a purple tinge and rain follows. When wind backs from northwest to southwest, clear weather follows.

Lexington, Ky.

Local storms are preceded by falling barometer, unusually high temperature, low humidity, and cumulus clouds; northwest storms, by falling barometer, cirrus clouds and wind veering to east; southwest storms, by falling barometer, unusually high temperature with wind backing to east and northeast.

Louisville, Ky.

Barometer falling slowly for forty-eight hours, unusually high temperature and humidity, cirro-stratus clouds in morning for two or three days in advance of storm, and light south wind.

Winter storms are generally from the northwest, with falling barometer for twenty-four hours in advance.

Long Branch, N. J.

For northeast storm, falling barometer, rising temperature, cirro-cumulus or cirro-stratus clouds, moving from west or southwest with lower atmosphere hazy. If wind backs to northeast from southwest, precipitation is greater than when it veers to the same quarter. For eastern storms same conditions, except, that upper clouds move from the westward. For northwestern storms the fall of barometer is most rapid.

Lynchburg, Va.

Long-continued rain storms are preceded from six to twelve hours by rising barometer, cirrus clouds moving from the southwest, with surface wind for the northeast.

Hazy and smoky atmosphere indicates rain. Before rain, especially when wind is in the south, the leaves of the maple, aspen, poplar, and willow trees curl up so as to show their under side. When cumulus clouds drift over low enough to cast perceptible shadows, rain generally follows within forty-eight hours.

Marquette, Mich.

Falling barometer for twenty-four or forty-eight hours, rising temperature, southerly wind, with cirro-stratus clouds moving from a westerly or southwesterly direction.

Memphis, Tenn.

Northwest storms are preceded by slow fall of barometer at first, followed by a more rapid fall as storm approaches; fresh southwest winds, backing to southeast, rising temperature and humidity, with slow formation of stratus clouds.

Greatest rainfall occurs with southeasterly winds.

Southwest and west storms are preceded by winds from the north-

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east and east, with same instrumental indications as for northwest storms.

Mobile, Ala.

Barometer falls slowly ten or twelve hours, and more rapidly two or three hours before storm; stratus clouds with southeast wind.

Morgantown, W. Va.

Falling barometer, rising temperature and humidity, with southwest or west winds, and cirrus clouds moving from the westward.

In winter a storm usually follows a falling barometer, with south wind. If barometer falls one-tenth of an inch between 7 a. m. and 12 m., bad weather follows within thirty hours. In winter, high temperatures are generally followed by bad weather, especially if accompanied by winds varying from northwest to northeast.

Increase of humidity between 12 m. and 3 p. m. is usually followed by rain before night on same day.

Backing of wind to southward, with falling barometer, nearly always followed by bad weather.

All wavy forms of cirro-stratus are sure signs of an approaching storm. In summer, when cirrus moves from northwest or north, a storm follows within thirty-eight hours.

Mount Washington, N. H.

Falling barometer, falling temperature, and cirro-stratus clouds moving from a northerly direction. When in small quantities these clouds indicate wind, and when in large quanties rain.

Nashville, Tenn.

Barometer falling slowly from twelve to forty-eight hours, increasing temperature and humidity, cirro-stratus clouds moving from southwest, with easterly surface wind from one to three days in advance of storm.

Crimson sky in morning is generally followed by rain within twelve hours.

New Haven, Conn. (Furnished by Prof. E. Loomis.)

Great storms are frequently preceded by an unusually pleasant day, so that a very transparent atmosphere may, perhaps, be regarded as an indication that a storm may be looked for within twenty-four hours.

One of the first indications that we are on the edge of a great storm consists in a slight turbidness of the atmosphere which would scarcely attract the attention of an ordinary observer, but which is sufficient to cause solar halos during the day and lunar halos during the night, if there is a moon. During the colder months of the year, our great storms are usually preceded by a rise of the barometer above the mean and a veering of the wind to the northeast. If the barometer rises considerably above the mean, and is accompanied by a fresh wind from the northeast, a storm is pretty sure to follow within twelve hours.

A considerable fall of snow is very frequently preceded for several hours by the same signs (high barometer and northeast wind), together with a feeling of extreme chilliness, much greater than is usually experienced with the existing state of the thermometer.

During the warmer months a strong breeze from the south, accompanied by towering cumulus clouds, is pretty sure to be followed by rain within a few hours, generally a thunder storm. The

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phenomenon which is most decidedly local in New Haven is the direction of the prevalent wind, together with the diurnal change in the wind's direction. During the six colder months of the year the prevalent wind is from the north-northwest, and the diurnal change in the wind's direction is slight. During the six summer months the wind in the morning usually blows from the north or northwest, but by noon, and sometimes by 10 a. m., it veers to the south or southwest, and continues thus for the remainder of the day. This peculiarity is supposed to be due to the difference of temperature between the land and the neighboring water, and it modifies, very sensibly, the direction of the New Haven wind in the neighborhood of the storm centre. During the passage of a great storm the wind at New Haven is much more northerly than is experienced at interior stations similarly situated with reference to a storm centre.

New London, Conn.

Falling barometer, rising temperature, cirrus and cirro-stratus clouds moving from the westward, light scud over the sea horizon moving with the surface wind, which is usually from the southwest. Humidity increases, and tides are of unusual height.

New Orleans, La.

Rapid movement of upper clouds, with little or no wind at surface. Falling barometer for several days in advance of storm, with rising temperature. Southerly winds precede rain, with cirro-stratus clouds moving from the westward.

New York, N. Y.

Rain storms, preceded by falling barometer, rising temperature, increasing humidity, cirrus clouds in upper with stratus in lower atmosphere, spreading gradually over the whole sky from the eastward.

Wind storms from an easterly direction, preceded by rapidly falling barometer, with frequent oscillations, rising temperature, increasing humidity moving rapidly at a great height.

Westerly storms, by rapidly rising barometer, free from oscillations, falling temperature, increasing humidity, changeable winds, with cirrus clouds in upper and stratus in lower atmosphere.

Norfolk, Va.

High and rapidly falling barometer, rising temperature, low humidity, unusually clear atmosphere, with southeast and east winds.

North Platte, Nebr.

Low followed by rising barometer, cumulus and cumulo-stratus clouds moving rapidly from northwest and west.

All storms approach from the northwest without reference to direction in which wind may blow previously.

Rain storms are preceded by north or northeast wind.

Omaha, Nebr.

Falling barometer, rising temperature, high and increasing humidity, and easterly winds.

Oswego, N. Y.

Wind storms are preceded by rapid fall of barometer, with wind veering from southeast to southwest, west, and northwest.

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Rain storms, by oscillating barometer, with downward tendency, hazy atmosphere, gradually changing to cirro-stratus or cirro-cumulus clouds moving from the westward.

Northeast storms, by high barometer and low temperature.

Local storms, by sudden fall of barometer, rising temperature, low humidity, cumulo-stratus clouds in west or southwest.

Pembina, Dak.

Falling barometer, rising temperature, with wind from south, southeast, or southwest.

Philadelphia, Pa.

Falling barometer, rising temperature, easterly wind, haziness in upper atmosphere, followed by cirro-stratus clouds moving from the northwest.

Peck's Beach, N. J.

Rising barometer for two or three days, followed by sudden fall with heavy ocean-swell from the eastward, six or eight hours in advance of storm.

Pittsburgh, Pa.

Falling barometer fifteen to thirty hours in advance, rising temperature, variable easterly to southerly wind, with cirro-stratus clouds moving from southwest or west. A dense fog or haze indicates rain within twenty-four hours.

Port Huron, Mich.

Thick heavy haze or clouds in northwest, with southeast wind, indicates rain. Low and falling barometer, with wind from the west-northwest or east-northeast, indicates wind.

Portland, Me.

Rain storms are preceded by falling barometer, falling temperature, and southwest wind.

Wind storms by falling barometer, northwest wind veering to southeast, cirro-stratus and cumulo-stratus clouds moving from the southeast. Southeast storms are often preceded by hazy atmosphere in southeast.

Punta Rassa, Fla.

Falling barometer, west or southwest wind, cirrus clouds changing to cirro-stratus with high humidity.

If the change to cirro-stratus occurs rapidly, rain will probably follow within twenty-four hours.

Halos seen on successive nights indicate rain within twenty-four hours. Birds fly about wildly a few hours before a storm occurs, and men-of-war hawks, usually high fliers in clear weather, fly low in contracted circles. Cyclones and tornadoes, are preceded by hazy, slaty, and ominous appearance of sky, atmosphere sultry, wind variable, and generally from east or southeast, clouds bank up in the east, stratus clouds float unusually low and move swiftly, detached inky-looking scuds still lower and swifter.

Rochester, N. Y.

Falling barometer, rising temperature, east or southeast wind, low humidity, and clouds moving from the southwest. A northeast wind backing to northwest or west, or veering to southwest in winter, indicates rain or snow.

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Sandy Hook, N. J.

Low and falling barometer, high and rising temperature, hazy atmosphere, with cumulo-stratus clouds moving from the west and southwest, and roaring sea.

San Diego, Cal.

Wind storms are of rare occurrence, and are preceded by warm east wind, with upper clouds moving from the west; oscillating barometer, with downward tendency, several days in advance of disturbance.

San Francisco, Cal.

Rain storms are preceded by falling barometer, low but rising temperature, and west wind. During the rainy season if wind veers to southeast rain follows.

Santa Fé, N. Mex.

Slight fall of barometer and rise of temperature, with cirrus clouds in their various formations, moving from the southwest.

Savannah, Ga.

Barometer above mean and rising slowly for twenty-four hours, remaining nearly stationary for six or eight hours, and then falling slowly, temperature opposite to movement of barometer, cirrus clouds forming near zenith, and moving to northeast.

Shreveport, La.

High and falling barometer, low humidity, and cirrus clouds calm or moving from the west.

Saint Louis, Mo.

Winter storms are preceded by falling barometer, southeast wind, cirro-stratus clouds and haze if temperature is high, and by stratus clouds if it is low. Summer storms, by stationary barometer, temperature above the mean, with cumulus and cirro-stratus clouds, the former in large masses.

Saint Mark's, Fla.

Barometer rises twenty-four hours before storm, with hazy atmosphere and south wind, the barometer beginning about six hours before storm to fall rapidly with rising temperature, and formation of cumulo-stratus clouds.

The tide rises rapidly.

Saint Paul, Minn.

Falling barometer, rising temperature, low humidity, southeast wind, with cirrus and cirro-stratus clouds.

Squan Beach, N. J.

Falling barometer, rising temperature, and dense haze; cirro-stratus clouds indicate wind and rain.

Toledo, Ohio.

Barometer falling rapidly, rising temperature, low humidity, easterly winds, cirrus clouds in western horizon moving eastward, followed by stratus until sky is obscured.

Tybee Island, Ga.

Northeast storms are preceded by rising barometer, falling temperature, low humidity, light cirrus clouds in bands from northwest

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to southeast, and moving from north or west, with light to fresh surface wind from the south, and heavy sea swell from the northeast.

Southern storms by falling barometer, rising temperature, high humidity, heavy masses of cumulo-stratus clouds, moving from the southwest, smoky sky, heavy rolling surf, and gentle, variable, and shifting north to east winds.

When the wind backs from northeast to west a gale generally follows.

Vicksburg, Miss.

Slowly falling barometer, high and rising temperature, sky of dull, whitish appearance, resembling haze near horizon; cirrus clouds followed by dense masses of cumulus; wind in light puffs from an easterly direction.

Virginia City, Mont.

Winter storms are preceded by low barometer, falling temperature winds shifting suddenly from some westerly quarter to an easterly one.

Summer storms by falling barometer and temperature, with westerly winds and dense stratus clouds.

Wilmington, N. C.

Southeast storms are preceded by rapidly falling barometer, rising temperature, increasing cloudiness and humidity, wind backing to an easterly direction from the southwest or west, and cirro-stratus clouds moving from the west or northwest.

Northeast storms by high and rising barometer, falling temperature, increasing haziness, cirro-stratus clouds moving from the southwest, with light winds veering to the northward and variable.

Southwest storms by falling barometer, high temperature, and fair weather. Thunder storms by low or falling barometer, unusually high temperature, cumulus clouds in western horizon, wind shifting suddenly from south or southwest to the northward.

GENERAL PHENOMENA.

1. Sky becoming overcast with cirro-stratus clouds moving from the southwest, west, or northwest.
2. Increasing haziness, especially in the upper atmosphere after a spell of fair weather.
3. Halos and corona.
4. Variable light wind veering and backing frequently, with a tendency to an easterly direction.
5. Sun setting red among threatening clouds or giving the horizon a greenish tinge.
6. Heavy dews in summer.
7. Driving scud, with increasing humidity.

Wood's Holl, Mass.

Easterly storms are preceded by rapidly rising barometer and temperature, cirrus clouds in early morning moving slowly from the northwest twelve or fourteen hours before approach of storm, and unusually high tides.

Southerly storms by rapidly falling barometer, rising temperature, clouds moving rapidly from the southwest, heavy ocean swell, and tides running stronger, but not as high as before easterly storms.

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Westerly storms by falling barometer, clouds moving in all directions, ocean greatly agitated, with low tides.

Sea birds come into harbor six or eight hours before storm arrives, and remain until it is over.

Wytheville, Va.

Slowly-falling barometer, rising temperature, east to southeast winds veering to west.

In winter snow storms are preceded by northeast winds, rising temperature, and slow fall of barometer.

Well-defined cirro-cumulus moving from any direction indicate rain.

Yankton, Dak.

Wind storms are preceded by falling barometer, sudden rise of temperature, clouds moving rapidly from the northwest, with southeast surface wind.

If a calm, with high temperature, occurs after a brisk northerly wind for twenty-four or forty-eight hours, a northwest gale may be expected.

Rain storms are preceded by barometric fluctuations, a hazy, ragged-edged, dark cloud, and wind from east to northeast.

The following tables contain the information heretofore published in pamphlet form under the title of "Rain and Dry Winds," computed for geographical districts.

Table I. Shows the quadrant from which the winds are most likely to be followed by rain or snow.

Table II. Shows the quadrant from which the winds are least likely to be followed by rain or snow.

These tables are computed from all the observations made by this bureau since its establishment to January 1, 1882.

The districts herein referred to are those adopted by this office as shown by the "District Map." For convenience of reference they are herein described at the foot of each table.

TABLE No. I.—*Winds most likely to be followed by rain or snow.*

1871 to 1881, INCLUSIVE.

Geographical district.	January.	February.	March.	April.	May.	June.
Eastern Gulf States	S to E	S to E	SW to SE	SW to SE	SW to SE	SW to SE
Key West and Punta Rassa	SE to NE	S to E	S to E	S to E	SE to NE	SE to NE
Lower Lake Region	SW to SE	SW to SE	SW to SE	SW to SE	W to S	W to S
Lower Mississippi Valley	SW to SE	S to E	S to E	S to E	SW to SE	SW to SE
Middle Atlantic States	SE to NE	S to E	S to E	S to E	SW to SE	SW to SE
Middle Eastern Rocky Mountain Slope.	NE to NW	E to N	E to N	E to N	SE to NE	S to E
Middle Pacific Coast Region	SW to SE	SW to SE	SW to SE	SW to SE	SW to SE	SW to SE
Middle Plateau District	SW to SE	SW to SE	SW to SE	SW to SE	NW to SW	NE to NW
Missouri Valley	NE to NW	NE to NW	S to E	SE to NE	S to E	S to E
New England States	SW to SE	SW to SE	S to E	S to E	SW to SE	SW to SE
Northern Rocky Mountain Slope.	NE to NW	NE to NW	NE to NW	NE to NW	NE to NW	SE to NE
North Pacific Coast Region	SW to SE	W to S	SW to SE	SW to SE	W to S	W to S
Northern Plateau District	W to S	SW to SE	SW to SE	NW to SW	W to S	NW to SW
Ohio Valley	SW to SE	SW to SE	SW to SE	SW to SE	SW to SE	SW to SE
Rio Grande Valley	SE to NE	SE to NE	SE to NE	SE to NE	SE to NE	S to E
South Atlantic States	E to N	SE to NE	W to S	SW to SE	SE to NE	SW to SE
Southeastern Rocky Mountain Slope.	E to N	S to E	S to E	S to E	S to E	S to E
South Pacific Coast Region	S to E	W to S	W to S	W to S	W to S	SW to SE
Southern Plateau District	W to S	W to S	SW to SE	W to S	SW to SE	S to E
Tennessee	SW to SE	SW to SE	SW to SE	SW to SE	SW to SE	W to S
Upper Lake Region	SW to SE	SW to SE	SE to NE	SE to NE	S to E	SW to SE
Upper Mississippi Valley	S to E	S to E	S to E	S to E	S to E	SW to SE
Western Gulf States	S to E	S to E	S to E	S to E	S to E	S to E

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TABLE No. I.—*Winds most likely to be followed by rain or snow*—Continued.

Geographical district.	July.	August.	September.	October.	November.	December.
Eastern Gulf States.....	SW to SE	S to E	S to E	S to E	S to E	S to E
Key West and Punta Rassa.	SE to NE	SE to NE	SE to NE	SE to NE	SE to NE	SE to NE
Lower Lake Region	W to S	W to S	W to S	SW to SE	SW to SE	SW to SE
Lower Mississippi Valley...	NW to SW	SW to SE	SW to SE	SW to SE	S to E	SE to NE
Middle Atlantic States.....	SW to SE	SW to SE	S to E	SW to SE	SW to SE	SW to SE
Middle Eastern Rocky Mountain Slope.	S to E	S to E	S to E	SE to NE	NE to NW	E to N
Middle Pacific Coast Region.	SW to SE	W to S	SW to SE	SW to SE	SW to SE	SW to SE
Middle Plateau District	N to W	SW to SE	SW to SE	SW to SE	W to S	SW to SE
Missouri Valley	S to E	S to E	S to E	S to E	NE to NW	NE to NW
New England States.....	SW to SE	SW to SE	SW to SE	SW to SE	SW to SE	NE to NW
Northern Rocky Mountain Slope.	S to E	SE to NE	NE to NW	NE to NW	N to W	NE to NW
North Pacific Coast Region.	W to S	SW to SE	SW to SE	W to S	SW to SE	S to E
Northern Plateau District..	W to S	NW to SW	NW to SW	W to S	SW to SE	SW to SE
Ohio Valley	W to S	W to S	SW to SE	SW to SE	SW to SE	SW to SE
Rio Grande Valley.....	S to E	SE to NE	SE to NE	SE to NE	E to N	SE to NE
South Atlantic States	SW to SE	SW to SE	SE to NE	SE to NE	E to N	SW to SE
Southeastern Rocky Mountain Slope.	S to E	S to E	S to E	S to E	E to N	E to N
South Pacific Coast Region.	W to S	NW to SW	N to W	W to S	W to S	S to E
Southern Plateau District..	SW to SE	S to E	SW to SE	SW to SE	S to E	W to S
Tennessee	W to S	W to S	SW to SE	SW to SE	SW to SE	W to S
Upper Lake Region	SW to SE	SW to SE	SW to SE	SW to SE	W to S	W to S
Upper Mississippi Valley ..	SW to SE	SW to SE	SW to SE	SW to SE	S to E	S to E
Western Gulf States.....	S to E	S to E	S to E	S to E	S to E	S to E

NOTES.

Eastern Gulf States.—Eastern Mississippi, Alabama, and Northwestern Florida.

Lower Lake Region.—Lake Erie and Ontario, with adjacent territory.

Lower Mississippi Valley.—A belt of country, 200 miles broad, from Cairo to Vicksburg. Below Vicksburg the character of the country so changes that it is no longer described as a valley.

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Middle Eastern Rocky Mountain Slope.—Eastern Colorado, Southern Nebraska, Kansas, northwestern portion of Indian Territory, portion of Northern Texas, also a portion of Northeastern New Mexico.

Middle Pacific Coast Region.—Those portions of California west of the Sierra Nevadas and north of the 37th parallel of latitude.

Middle Plateau District.—Western Colorado, Utah, Nevada, southwestern corner of Wyoming, and the portions of California lying east of the Sierra Nevadas.

Missouri Valley.—A belt of country 200 miles broad, from Fort Sully, Dak., to Jefferson City, Mo.

New England States.—Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island.

Northern Rocky Mountain Slope.—Those portions of Montana and Wyoming lying east of the Rocky Mountains, Southwestern Dakota, and Northwestern Nebraska.

North Pacific Region.—Those portions of Oregon and Washington Territory lying west of the Cascade range.

Northern Plateau District.—Portion of Western Wyoming, Western Montana, Idaho, and the portions of Oregon and Washington Territory lying east of the Cascade range.

Ohio Valley.—The belt of country, about 200 miles broad, from Pittsburgh, Pa., to Cairo, Ill.

Rio Grande Valley.—Southwestern Texas below the junction of the Rio Pecos with the Rio Grande.

South Atlantic States.—North Carolina, South Carolina, Georgia, and Northern and Eastern Florida.

Southeastern Rocky Mountain Slope.—Southeastern New Mexico, Central and Western Texas.

South Pacific Coast Region.—Those portions of California west of the Sierra Nevadas and south of the 37th parallel of latitude.

Southern Plateau District.—Western New Mexico, Arizona, and Southeastern California.

Upper Lake Region.—Lakes Superior, Huron, and Michigan, with adjacent country.

Upper Mississippi Valley.—The belt of country, about 200 miles broad, from Saint Paul to Cairo.

Western Gulf States.—Western Louisiana, Western Arkansas, Eastern Texas, Southern Missouri, and southeastern portion of Indian Territory.

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TABLE NO. II.—*Winds least likely to be followed by rain or snow.*

1871 to 1881, INCLUSIVE.

Geographical district.	January.	February.	March.	April.	May.	June.
Eastern Gulf States	NW to SW	NW to SW	N to W	N to W	N to W	NE to NW
Key West and Punta Rassa	NW to SW	N to W	N to W	N to W	N to W	N to W
Lower Lake Region	NE to NW	NE to NW	NE to NW	N to W	E to N	E to N
Lower Mississippi Valley	N to W	N to W	N to W	N to W	NE to NW	E to N
Middle Atlantic States	N to W	N to W	N to W	N to W	N to W	NE to NW
Middle Eastern Rocky Mountain Slope.	NW to SW	NW to SW	NW to SW	NW to SW	NW to SW	NW to SW
Middle Pacific Coast Region	E to N	E to N	NE to NW	E to N	E to N	NE to NW
Middle Plateau District	E to N	N to W	E to N	E to N	E to N	W to S
Missouri Valley	W to S	W to S	W to S	NW to SW	NW to SW	NW to SW
New England States	SE to NE	N to W	N to W	N to W	N to W	N to W
Northern Rocky Mountain Slope.	S to E	W to S	W to S	W to S	W to S	NW to SW
North Pacific Coast Region	NE to NW	NE to NW	E to N	E to N	SE to NE	SE to NE
Northern Plateau District	NE to NW	NE to NW	E to N	NE to NW	E to N	E to N
Ohio Valley	N to W	NE to NW	N to W	NE to NW	NE to NW	E to N
Rio Grande Valley	NW to SW	NW to SW	NW to SW	NW to SW	NW to SW	NW to SW
South Atlantic States	NW to SW	N to W	N to W	N to W	N to W	NE to NW
Southeastern Rocky Mountain Slope.	NW to SW	NW to SW	NW to SW	NW to SW	N to W	N to W
South Pacific Coast Region	NE to NW	NE to NW	NE to NW	E to N	E to N	E to N
Southern Plateau District	NE to NW	E to N	E to N	E to N	NE to NW	N to W
Tennessee	N to W	N to W	N to W	N to W	N to W	NE to NW
Upper Lake Region	E to N	N to W	N to W	N to W	N to W	N to W
Upper Mississippi Valley	NW to SW	NW to SW	NW to SW	N to W	N to W	NE to NW
Western Gulf States	NW to SW	N to W	NW to SW	N to W	N to W	N to W

Geographical district.	July.	August.	September.	October.	November.	December.
Eastern Gulf States	NE to NW	NE to NW	NW to SW	NW to SW	NW to SW	NW to SW
Key West and Punta Rassa	NE to NW	N to W	N to W	NW to SW	N to W	N to W
Lower Lake Region	E to N	E to N	NE to NW	NE to NW	NE to NW	NE to NW
Lower Mississippi Valley	E to N	E to N	NW to SW	N to W	NW to SW	N to W
Middle Atlantic States	E to N	N to W	N to W	N to W	N to W	N to W
Middle Eastern Rocky Mountain Slope.	NW to SW	W to S	NW to SW	NW to SW	NW to SW	W to S.
Middle Pacific Coast Region	NE to NW	E to N	E to N	NE to NW	SE to NE	E to N
Middle Plateau District	SE to NE	E to N	E to N	E to N	E to N	E to N
Missouri Valley	NW to SW	N to W	NW to SW	NW to SW	W to S	W to S
New England States	N to W	N to W	N to W	N to W	N to W	NW to SW
Northern Rocky Mountain Slope.	NW to SW	NW to SW	SW to SE	SW to SE	SE to NE	W to S
North Pacific Coast Region	SE to NE	SE to NE	E to N	E to N	E to N	NE to NW
Northern Plateau District	SE to NE	S to E	S to E	E to N	E to N	NE to NW
Ohio Valley	E to N	E to N	N to W	E to N	N to W	N to W
Rio Grande Valley	NW to SW	NW to SW	NW to SW	NW to SW	W to S	W to S
South Atlantic States	N to W	N to W	N to W	NW to SW	NW to SW	N to W
Southeastern Rocky Mountain Slope.	N to W	N to W	NW to SW	NW to SW	NW to SW	NW to SW
South Pacific Coast Region	E to N	'S to E	S to E	SE to NE	NE to NW	NE to NW
Southern Plateau District	NE to NW	NE to NW	NE to NW	NE to NW	NE to NW	E to N
Tennessee	NE to NW	E to N	N to W	N to W	N to W	N to W
Upper Lake Region	N to W	N to W	N to W	E to N	E to N	E to N
Upper Mississippi Valley	N to W	NE to NW	E to N	N to W	NW to SW	NW to SW
Western Gulf States	NE to NW	N to W	NW to SW	NW to SW	NW to SW	NW to SW

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